

The Canadian Builder *and* Carpenter

PUBLISHED ONCE A MONTH BY THE COMMERCIAL PRESS, LIMITED

C. A. Bradshaw
183 Davenport Rd.
Toronto, Ont.

Giving the Readers What they Want

THE editorial idea of "The Canadian Builder and Carpenter" is to give its readers new and practical ideas to work from, to illustrate typical building plans and introduce new ideas in buildings. That we have succeeded, is shown by the following letters which are typical of several hundred received during the past year:

☐ Your paper is greatly appreciated. I have noted its improvement during the past year. I find that the advertising department keeps me in touch with materials that I have never heard of before.—H. Wilkes.

☐ Am receiving paper regularly and consider it quite valuable in many ways. I think you publish the best of its kind in Canada.—Wm. A. McNeill.

☐ I like your paper very well as it gives you some very good ways of doing work and the latest plans of houses which are being built in the country.—D. Ferguson.

☐ We are, of course, anxious to have suggestions and criticisms and we shall be glad to hear from our readers at any time.

☐ With best wishes for the New Year.

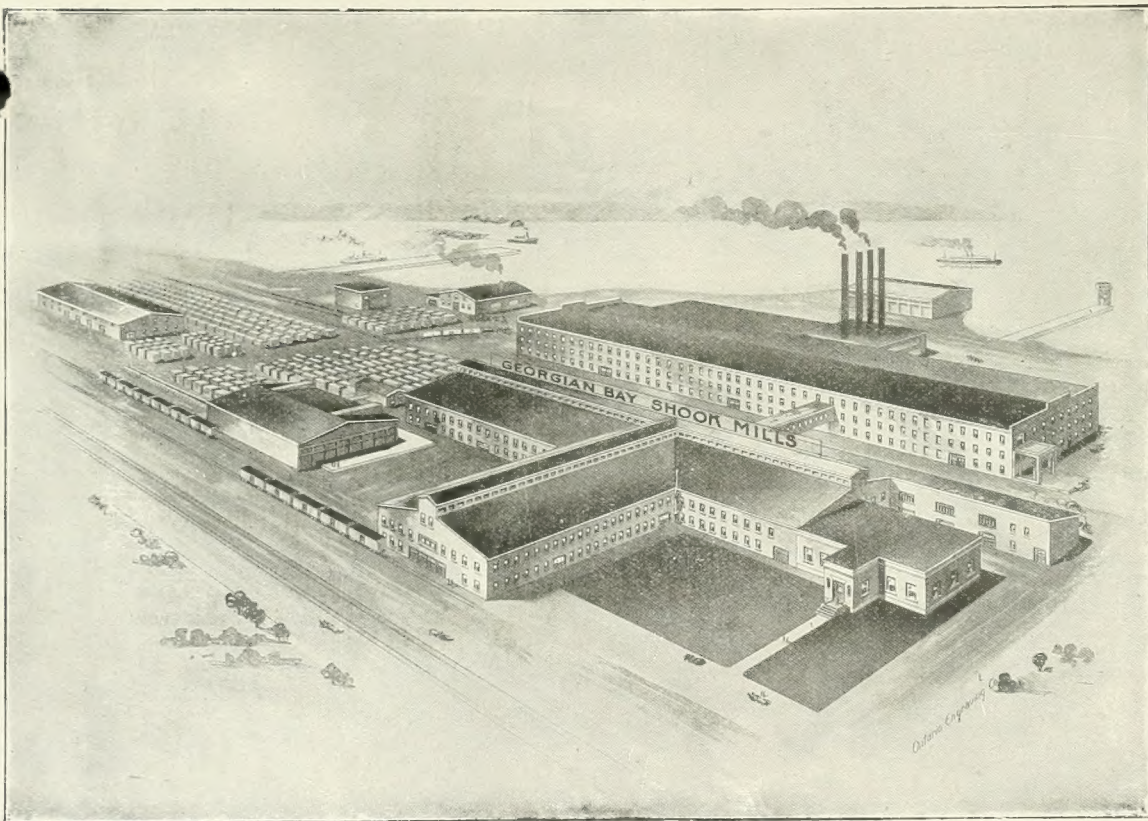
Editors and Managers



Midland Planing Mill Products

The Leading Stock Lines

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You should not buy one dollar's worth of foreign Doors, Sash or other mill products during the present year, either direct from foreign concerns or from their Canadian agents.

ON OUR PART

We guarantee to meet the foreign competition and give dollar for dollar value

You should give more consideration to the merits of Canadian native woods, such as White Pine, Clear Norway Pine, Maple, Beech, Birch, Ash, and Oak.

An investigation of the prices of our own native woods will surprise you, and compare more than favorably with foreign goods.

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Canadian White Pine—For paint finish unequalled.

Clear Canadian Red Pine—Superior in appearance and finish to yellow pine.

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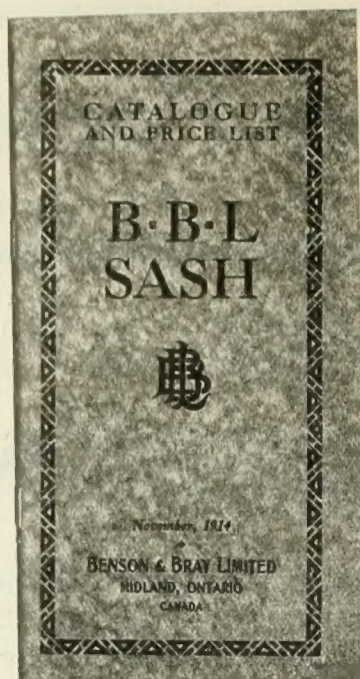
Canadian Birch—Beautiful in natural finish, and admirably suited for stain such as Cherry or Mahogany.

Let us prove the above statements by sending you samples. Write us for full particulars, prices, etc., and write for our stock catalogue

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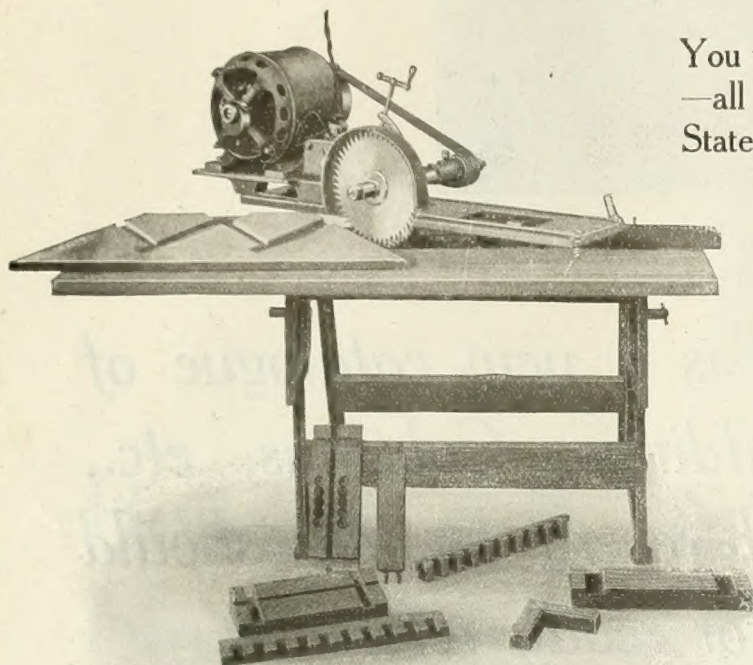
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ADDRESS.....

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IN 20 MINUTES WITH AN ELLIOT WOODWORKER

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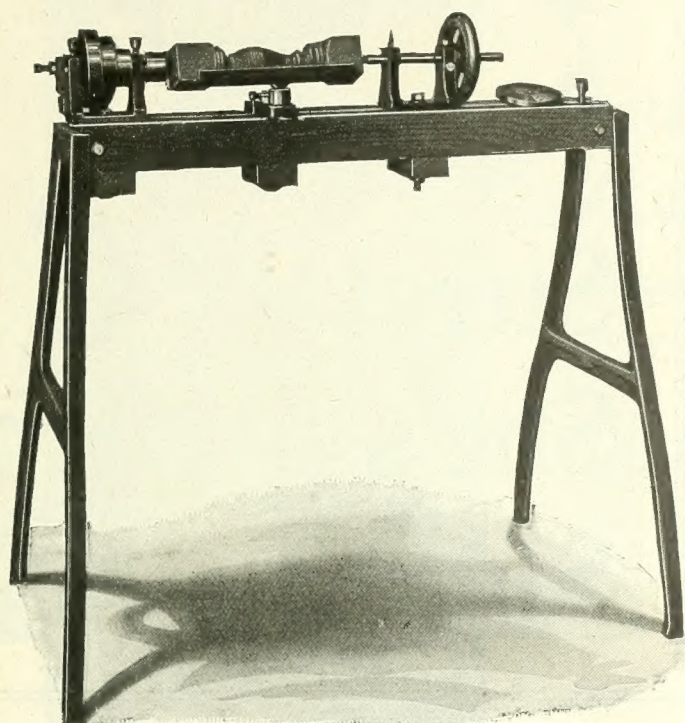
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College and Bathurst Streets

Toronto, Can.

ELLIOT WOODWORKING MACHINERY IS SOLD
ALL OVER CANADA AND THE UNITED STATES

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It is just the thing for model and technical schools and can be run from any power.

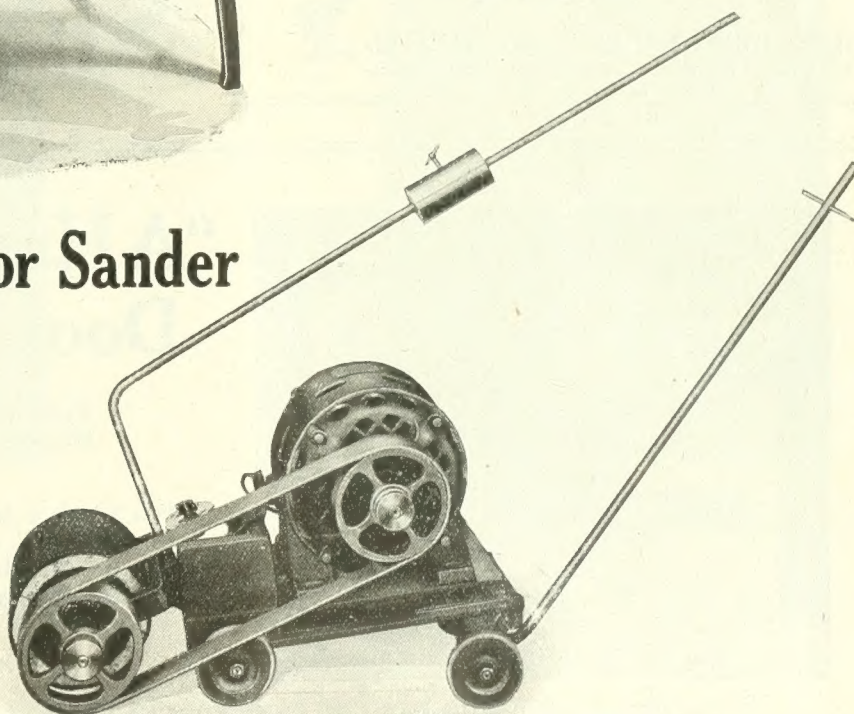
It is made specially to run from the Elliot Woodworker Motor or we will fit it with individual motor. For making 4" table legs, balusters and all small turning this lathe cannot be beaten. The equipment includes face plate, screw chuck, hollow chuck, 12" and 24" rest and 2 sockets.

Takes 36" between centres. Can be made longer if desired

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***Save 50% on
your labor***

By using the Elliot Floor Sander. No scraping is necessary and it leaves the floor in perfect condition.



Write for catalogue, prices and terms of all our woodworking machinery

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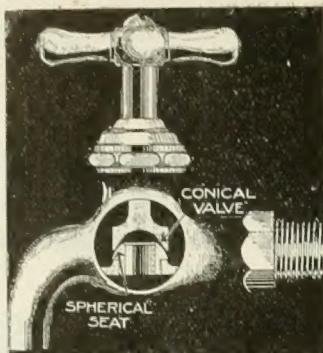
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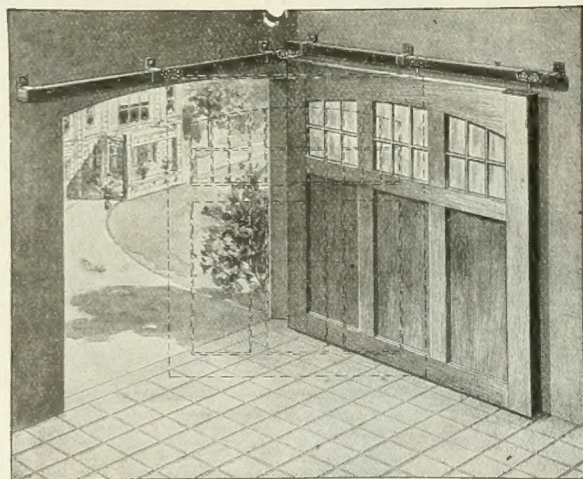
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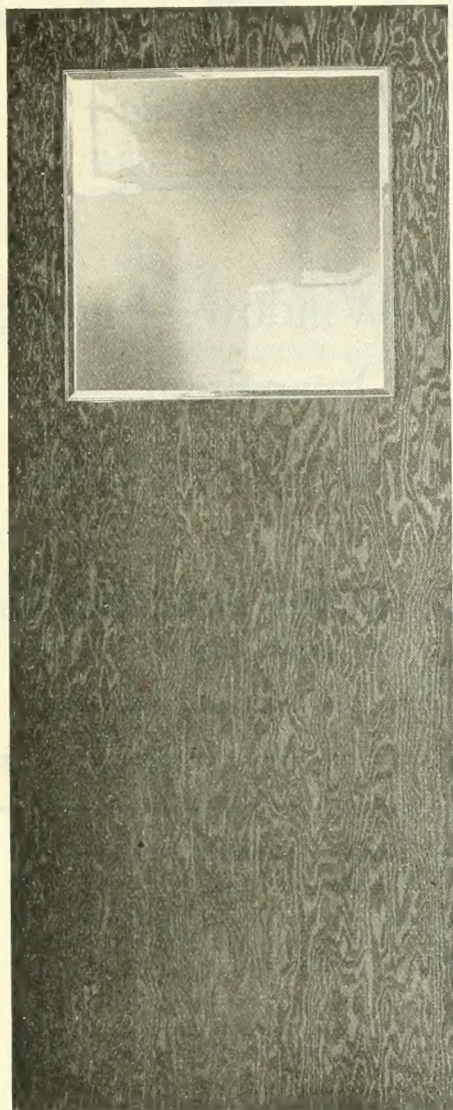
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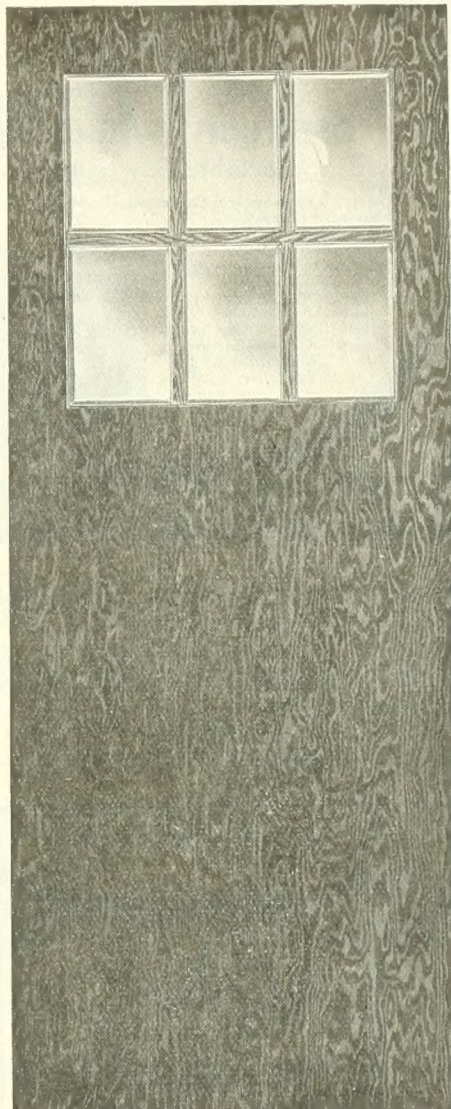
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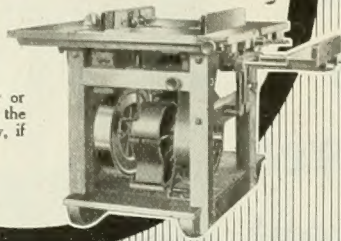
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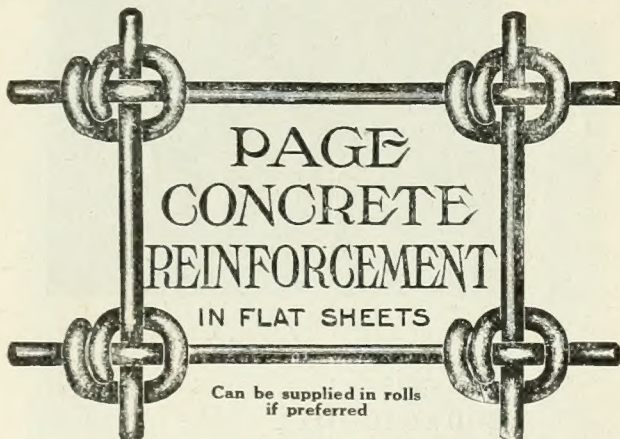
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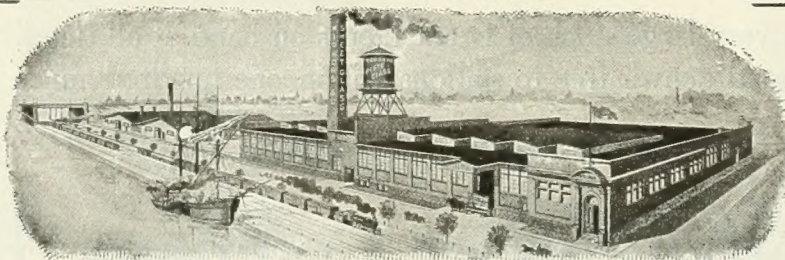
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BENDERS
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and Ornamental Glass

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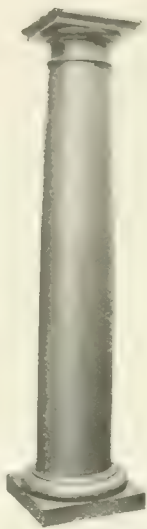
Be sure and look for the March issue of the Canadian Builder and Carpenter. This will be the Annual Directory Number, which number will be a very valuable reference for Builders, showing where all classes of building equipment and materials are to be had.



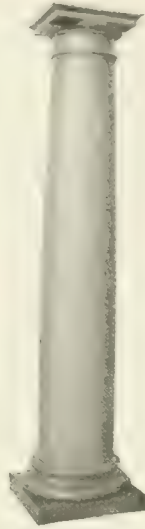
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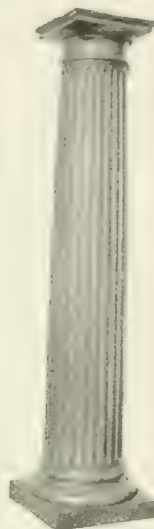
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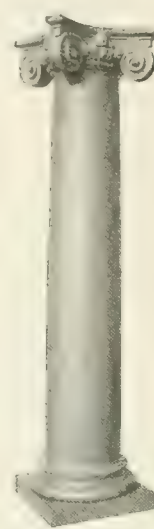
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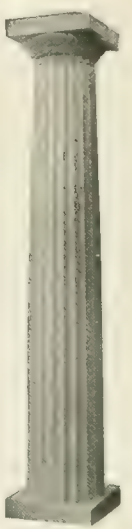
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Design B. L. No. 4



Design B. L. No. 5

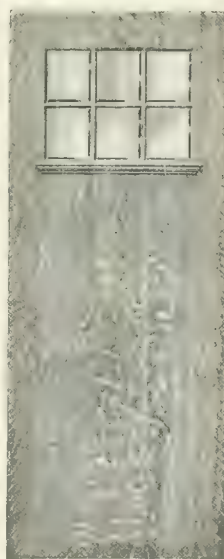


Design B. L. No. 6

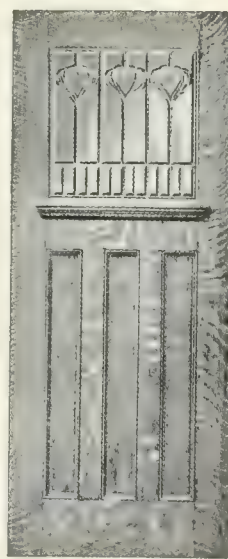
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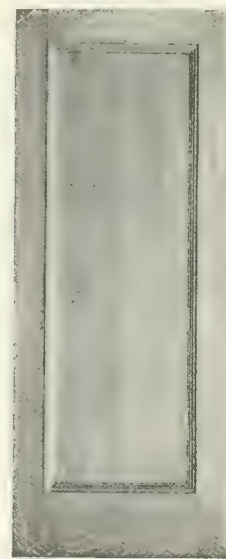
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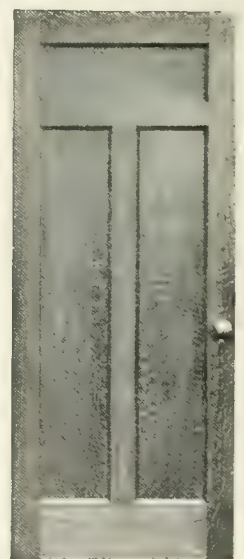
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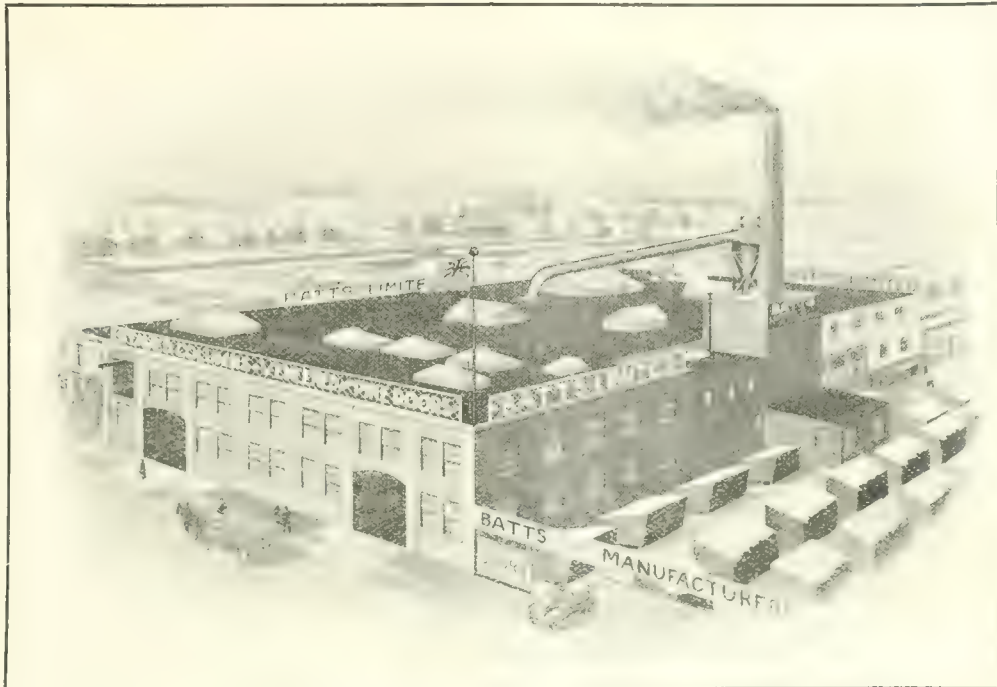
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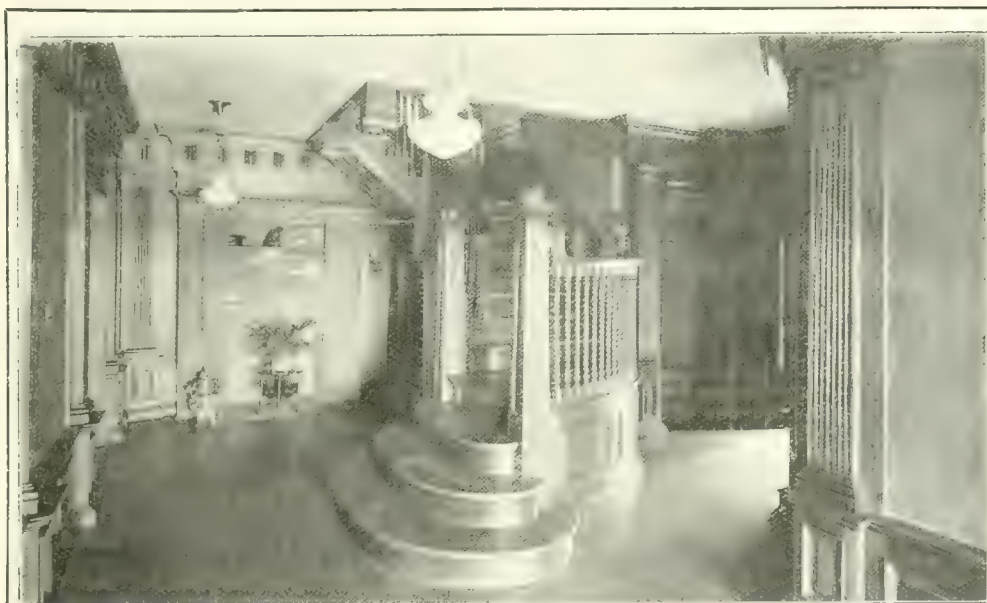
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A Paper Which Gives Its Readers Service

The Canadian Builder and Carpenter is constantly in receipt of letters from satisfied readers. The following expressions of opinion were entirely voluntary and were merely the first ones on the top of a pile of several hundred similar letters. It will be noted they are from all parts of the Dominion and not confined to any city or town.

Each issue, in future, will contain a page of these letters as evidence that this paper is being read and is giving subscribers the class of material of most use to them.

I look forward for every edition and find it very useful and well worth the subscription price.—F. Middle, St. Thomas.

Your paper, The Canadian Builder and Carpenter, is all right.—W. C. Barnes, Moncton, N.B.

Your paper is good. Has improved wonderfully during the last eighteen months. I am enclosing \$1 in payment of my subscription from Sept., 1913, to Sept., 1914. I shall do all I can to secure subscriptions.—C. H. Watson, Pincher Creek, Alta.

I think it is a very good paper, and it contains a good many hints for carpenters.—P. Harding, Rivers, Man.

I like your paper and have found same very useful to me on many matters in the building trade. Am using same for reference.—Jno. H. Booth, Winnipeg Beach, Man.

It was through neglect that I have not sent my renewal subscription before as I would not like to be without it.—A. Mapes, Walkerville, Ont.

I have derived a considerable amount of pleasure and profit from my Canadian Builder, but would like to see more labor-saving devices illustrated and described: also more articles on the uses of concrete, both plain and reinforced, as floors, beams, and roofs.—E. G. Jackson, Saskatoon, Sask.

I like the paper exceedingly and think it a great help to anyone in the building trade. There is not much in the paper that you can criticize, for everything published is good and useful. Anyone with any common sense can follow instructions given and ought to make a success of anything they try to do if they follow details you publish.—C. Benson, Hamilton, Ont.

I like your paper very much. It contains very sensible reading matter and also very practical in its notes. I clean forgot my subscription, as you remark, so am enclosing cheque right now. Will try and send you some photos of the "Lewis Bldg." here, which is a splendid example of true Gothic architecture, ten storeys high, and on which I was building inspector.—E. B. Palmer, Montreal, Que.

I like the paper all right. It is interesting and instructive.—Wm. Wilson, Winnipeg, Man.

I consider The Canadian Builder and Carpenter splendid value and enjoy each number very much.—Jno. W. Carl, St. Catharines, Ont.

I find it very handy and want to keep in touch with it.—Wm. McCall, Winnipeg, Man.

I feel sorry I have not forwarded my subscription before now, so you will find enclosed \$1.00 bill for same. I like all the articles published, for I am interested in general subjects on building construction. I may say your paper has much improved during the last twelve months, and I am always looking forward to it.—G. Edwards, Nutana, Sask.

I consider your paper a most valuable source of information; hope you'll stick to the simple, plain and practical, and not rake it for granted that everybody knows algebra and the like, as so many papers do.—W. Jameson, Winnipeg, Man.

We are well pleased with the paper and wish it every success. All Canadian carpenters and builders should subscribe to it and deal with its Canadian advertisers when possible. I would like to see a section in it on woodworking machines, so that subscribers could send articles on how they get the best out of their machines, and other little kinks in connection with machinery.—F. C. Nicholson, St. Catharines, Ont.

I am very much pleased with your paper and find it a great help to me. Wishing you every success in the future.—Alex. Higgins, South End, Ont.

Each issue is better than the last one, and is well worth the dollar.—B. Hammond, Winnipeg, Man.

Without doubt the Canadian Builder and Carpenter is a success and beneficial to all trades in building construction.—J. M. Stratton, Welland, Ont.

I find your Canadian Builder and Carpenter very good indeed, and have noticed with interest the steady growth of same. I am interested in all subjects relative to the building business.—E. T. Broad, Lethbridge, Alta.

If any subscriber desires a copy of the paper sent to one of his friends in the building trade, write us.

The Canadian Builder & Carpenter

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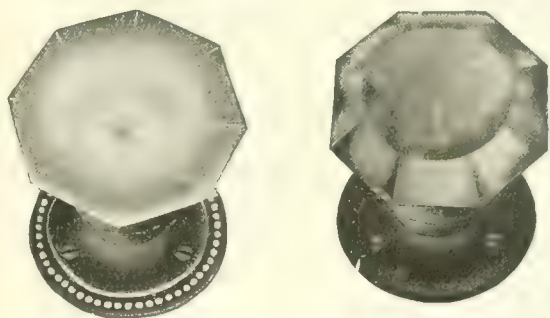
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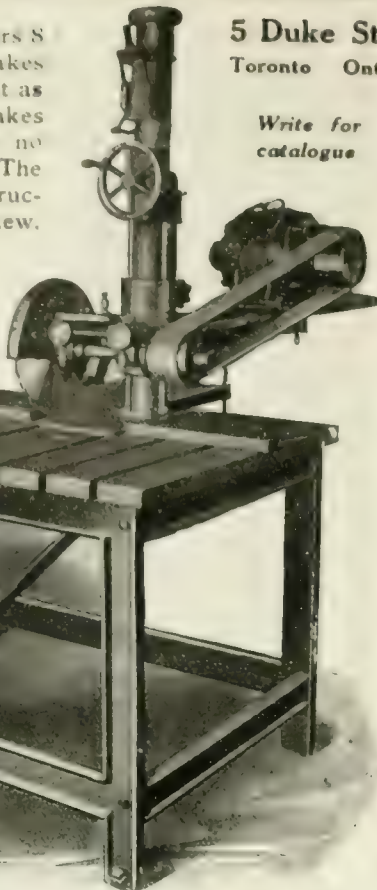
Canada

*Iron Stairs, Balconies, Fire Escapes, Grilles, Mar-
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The saw rises and lowers 8 ins. This operation makes no difference to the belt as is the case with other makes of machines there is no overhanging slide. The table is clear of all obstructions, all work is in full view.

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All steel
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Toronto, Ont.**

A PRACTICAL
MONTHLY
PAPER

The Canadian Builder and Carpenter

PUBLISHED END
OF
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Subscription Rate, \$1.00 per year in Canada and Great Britain; \$1.50 to the United States; \$2.00 to Foreign Countries. Subscribers would do us a favor by notifying us if they do not receive

the paper regularly, so that the matter may be rectified. In notifying us of change in address, please send old as well as new address. Advertising rates on application.

Vol. 5

TORONTO, JANUARY, 1915

No. 1

Editorial Contents

Garage Door Problem—Hanging of Full
Front Doors on Garages—Part I. (6 cols.,
illustrated) 19
By E. J. G. Phillips.

Attractive House in Montreal West (2 cols.,
illustrated) 22

House with Side Entrance (2 cols., illus-
trated) 23

Opportunities Offered Young Men by Build-
ing Industry 24

Builders Should Provide Substantial Seaf-
olding 24

Sheet Metal Building Construction for Rural
Communities (6 cols., illustrated) 25
By Edward Dreier.

Carpentry and Woodworking 28
Mirror a Good Elevator Accessory.
Filing Useful Clippings.
The Care of Oilstones.

Placing Confidence in Foreman Creates
Efficiency.

Details of Flour Bin.

Staining Fir.

Framing Winding Stairs.

French Doors and Casements.

Strength of Glue.

Concrete Department 31

Concrete Chimneys.

How Farmers Build Concrete Silos.

Brick Work and Plastering 33

Applying Stucco to Brick Work.

Brick Work in the Garden.

The Use of Lime in Mortar.

Interior Plastering on Concrete Block.

Cleaning Pressed Brick Stained by Smoke.

Eliminating Acoustical Defects 35

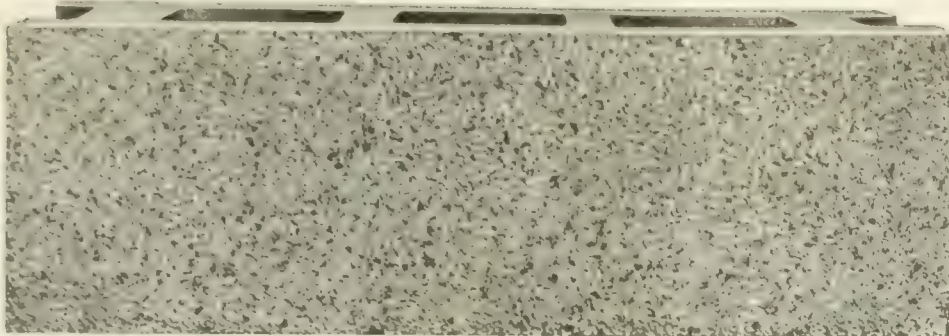
Building Permits 35

News of Builders' Exchanges 36

"Conceal-o" Gas Wall Plate 39

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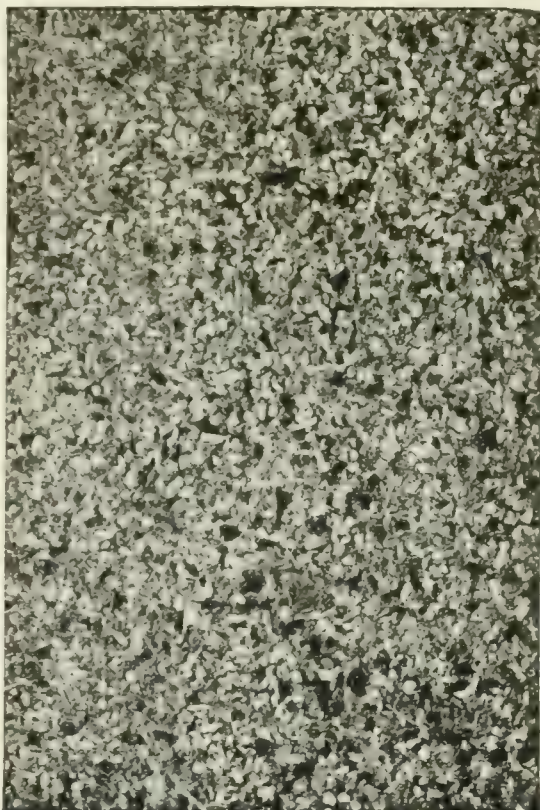
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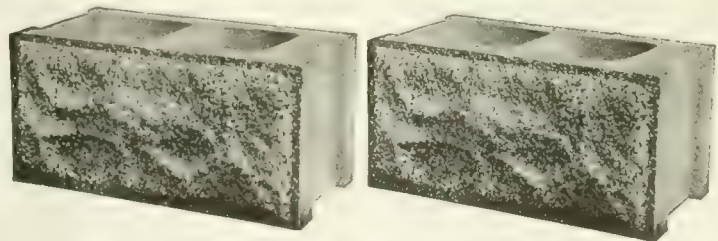
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Garage Door Problem—Hanging Full Front Sliding Doors on Small Garages—Part I.

By E. J. G. Phillips
Chief Engineer, Richards-Wilcox Canadian Co., Ltd.

The construction of garages has opened up a new field to the Canadian builder. Many of the details are similar to those met in the construction of other buildings but the doors require special attention. The following article from the "American Carpenter & Builder," should be of service in eliminating any problems which may be presented in connection with doors for small garages.

HOW shall we hang the garage doors, and how keep out the weather? This has become a vexing question to many since the advent of the automobile, bringing the garage with it. It is the purpose of this article to call attention to a few methods which have been used to meet successfully a large number of varying conditions. The questions relating to the most suitable design, size, thickness, and style of the doors will not be considered.

The old-fashioned hinged door is occasionally seen, but should not be used, as it is a constant source of

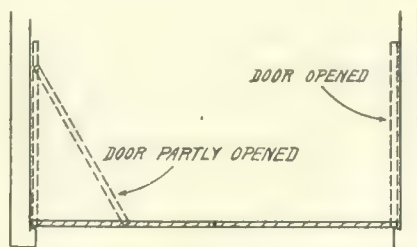


Fig. 1. Plan View of Right Angle Sliding Doors

annoyance, especially if the doors are large and the opening is nearly the full width of the building. A considerable space is required in which to swing the doors, and when open the doors are subject to winds blowing them back and forth, with the consequent strains on the hinge fastenings and the door in general. Of course, hooks may be provided to hold the doors open, but this requires extra time and effort, and even though carefully attended to for a while, carelessness will eventually set in and the hooks will be neglected.

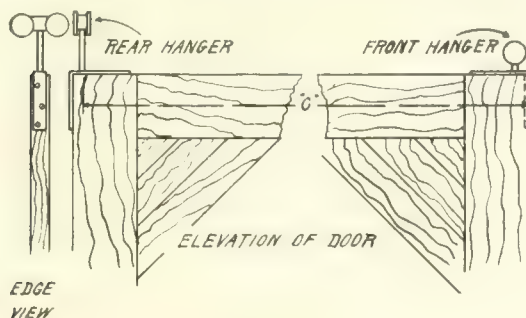


Fig. 2-B.

Then, again, the principle itself of hanging large doors on hinges is wrong, as strains will be set up which will eventually cause the door to sag and get out of shape.

Right Angle Door Hangers for Small Garage.

We will consider first the most common type of private garage intended only for one car and with the opening in the centre of the front wall. On this class, especially the smaller ones, it is frequently desirable to make the opening nearly the full width of the build-

ing, allowing only jamb space sufficient to provide for the lap of the doors. This case is shown in Fig. 1, and is one which presents quite a difficulty to many builders as well as architects, but can be handled satisfactorily by using two doors with R-W right angle door hangers. With these fixtures, the doors when opened occupy positions along the side wall, as shown in dotted lines. Three runs of track are required for the door hangers, one of which is attached entirely across the inside of the front of building and extends into the wall 2 ins. on each end. Another piece of track is attached to each side wall just above the first track and resting on top of it (Fig. 2), and with the front end extending into the wall 2 ins.

To erect these doors, first attach the hangers (which are made with an angle plate to fit over the corner of the door) to the doors. Single or two-wheel hangers are required for the meeting stiles of the doors and four-wheel hangers are used on the back end of the door. While four-wheel hangers might be desirable for both ends of the door, an inspection of Fig. 2-B will show that this cannot be done because the wheels of both hangers projecting beyond the edge of the door would strike before the doors were entirely closed. The wheels cannot be set back farther from the

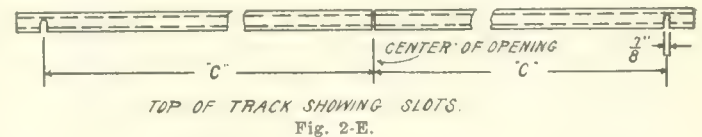


Fig. 2-E.

edge of the door, due to the fact that the door would not clear the jamb in making the turn. Note interference shown in dotted lines at D, Fig. 2. The two-wheel hangers run in the track across the opening, and the four-wheel hangers, which are provided with extra long pendant bolts, run in the side tracks. Obviously, the angle plates of the two-wheel hangers must be set into the door flush to permit the two doors to close tight, but the hanger plates for the back end of the door need not necessarily be flush.

Measure the distance "C" from the front edge of the door to the centre of the pendant of the back hanger and lay off this distance on the front track, measuring each way from the centre. Then with a hack saw cut two slots $\frac{7}{8}$ in. wide in the track, continuing them about $\frac{1}{2}$ in. beyond the centre, as shown in Fig. 2 E. This is necessary, as it is evident that in closing the door the long pendant of the rear hanger would strike against the side of this track before the door closed tight against the jamb. The front track, for convenience in erecting, should be in two pieces. Attach one piece to the front wall, letting it extend into the side wall two inches and at the proper height to allow sufficient working space for doors and hangers. Next, raise the doors, slip front or two-wheel hangers of both doors into the track already erected, and proceed

to attach the remaining piece of front track. Swing doors around into the position they are to occupy over the opening, and if the work has been properly done the pendants of rear hangers will enter the slots cut in the track. Slip the side tracks over the rear hangers, allowing the front end to rest on top of front track and to enter front wall 2 ins. Attach to side wall with

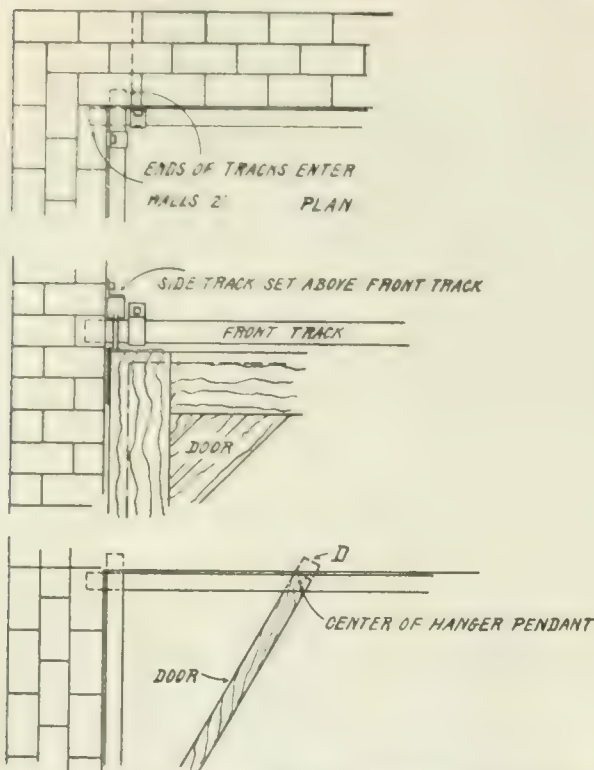


Fig. 2. Details of Track and Hangers arrangement for Right Angle Sliding Doors.

necessary brackets. The doors, after hangers are properly adjusted vertically, are ready for operation.

These fixtures, with brackets for side wall attachment, require about 8 in. headroom above the doors for doors of ordinary weight. If ceiling attachment brackets are used, the headroom can be reduced to 7 ins. For doors $2\frac{1}{4}$ ins. or more in thickness and extra

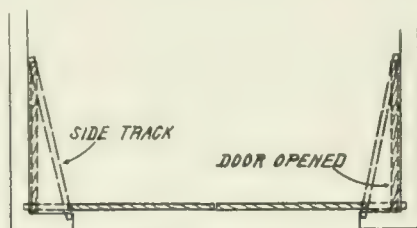


Fig. 3. Plan View of Right Angle Doors.

heavy, a larger size track should be used. This will require about $2\frac{3}{4}$ ins. more headroom.

In hanging doors with any style of trolley track, the builder should be sure to use a sufficient number of brackets, spacing them 2 or 3 ft. apart.

Arranging Tracks Where Doorway is Not Full Width of Front.

Fig. 3 shows a condition which is more frequently met with, that is, a garage in which there is a foot or more space between the jambs and the side wall and yet not space enough to slide the doors. In this case

the doors can also be hung with the right angle door hangers already described, sliding the doors over against the side wall. A slightly different arrangement of the track is required, but if erected as described below, a satisfactory working job may be had. After the hangers have been attached to the doors, measure the distance "C" from the front edge of the door to the centre of the rear hanger pendant, and lay off this dimension on the top of the front track, measuring either side of the centre and draw a line, Fig. 4. Then, with the track lying on the floor, place one end of the side track on top of the front track over the line and the other end in a line at right angles with the out end of the front track, and mark the angle which side track

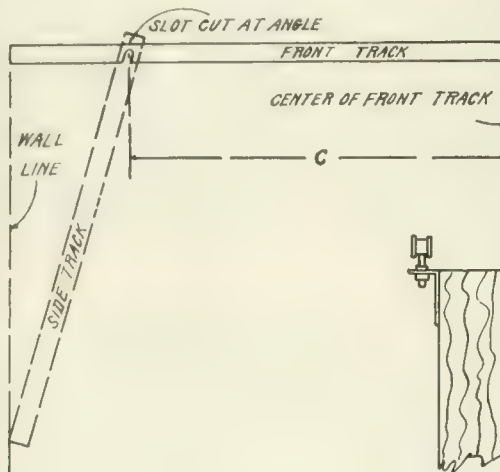


Fig. 4.

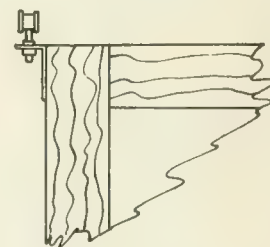


Fig. 5.

makes with front track. The slots in front track will then be cut with hack saw and chisel to this same angle and will appear as shown in Fig. 4. The side tracks may be supported with the regular side brackets by placing a board across the corner of the building, to which the brackets can be attached, or the track may be attached to the ceiling with suitable brackets. In this case the front end of the side tracks should extend into the wall 2 ins., and if the angle of this track is great, the back ends of tracks should enter walls a short distance. The front track should extend entirely across front of building and 2 ins. into side walls.

On rare occasions there may not be headroom enough to use one track above another, and in these cases it is necessary to use a rear hanger with pendant same length as front hanger and to attach rear hanger to

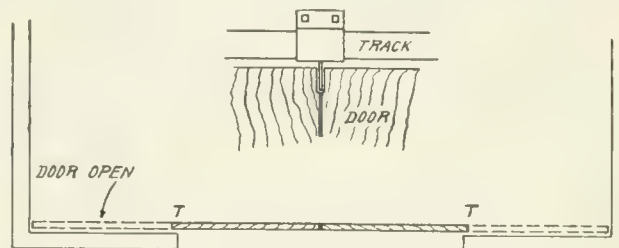


Fig. 6.

door with special irons, as shown in Fig. 5. The front track will then be made only about 4 ins. longer than width of opening, and the side tracks will be placed against the ends of front track and at the same height. Special fixtures are, however, to be avoided whenever possible because of extra trouble and expense involved.

If, as shown in Fig. 6, there is sufficient wall space

adjoining the opening to slide the doors straight back and yet clear, a pair of simple sliding doors may be used, preferably hung on the inside of building. These doors require no special comment, as builders are quite familiar with their use, except that hangers with both vertical and lateral adjustment should be used. The lateral adjustment provides for running the doors close to the jambs, assisting in keeping out the weather, while the vertical adjustment provides for the proper

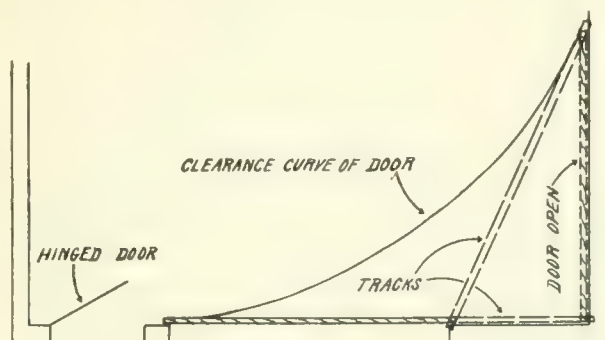


Fig. 7.

clearance between the floor and the bottom of the door. Of course, it is unnecessary to say that trolley or box-shaped tracks are in every way superior to the old flat rail tracks, and should always be used. A centre stop-bracket may be used over the centre of the opening to stop the doors. A small notch is cut out of each door to receive the stop. See Fig. 6.

Where Small Hinged Door Compels Sliding All to One Side.

Another type of building is shown in Fig. 7, in which a small swing door is located near the large door in the front wall, prohibiting the sliding of main doors toward both sides of building. In this case, a single right angle door may be used, fitted with hangers and track, as described above, except that in the case of a single door two four-wheel hangers should be used, a hanger with short pendant for the front end of the door and a hanger with long pendant for the rear end of the door. If, however, the car is nearly the length of the garage and too much space would be required to swing the large door around the corner (see clear-

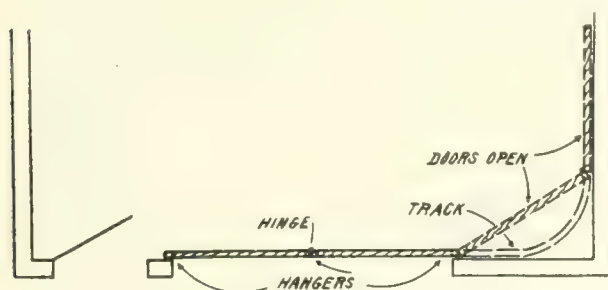


Fig. 8.

ance curve of door), two doors may be used, hinged together, as shown in Fig. 8. As shown, a curved section of track is necessary and three hangers suitable for operating in curved track must be used. Hangers similar to the four-wheel hanger for right angle doors, except that frame is knuckle-jointed, are satisfactory. The centre hanger must have a special plate for attaching to doors, which will bring the centre of the pendant over the joint between the two doors. To make a tight job, the meeting styles of the doors should either

be astragals or be rabbeted. The doors when open will stand as shown in the illustration. To use the curved track, at least two feet of space is required between the jamb and the side wall.

If there is sufficient wall space, the doors for this opening may be hung, as shown in Fig. 9, using one track with a compound curve. The doors will then when open stand side by side along the front wall, and when closed will hang in a continuous line across the opening. The double tracks may be attached to the head jamb with double brackets, as shown in Fig. 9 at F, or separate ceiling attachment brackets may be used for each track. The hangers will have to be located somewhat farther from the edge of the door than is customary for ordinary sliding doors; and hangers with knuckle-jointed frame are necessary for

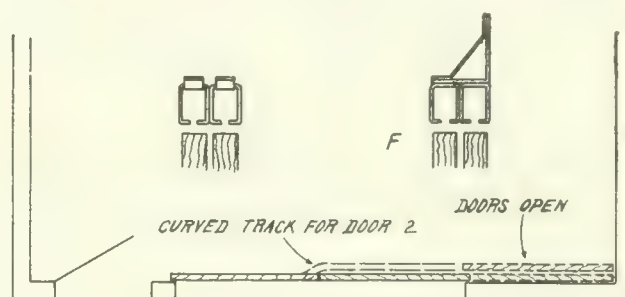


Fig. 9.

the door which operates in the curved track. Much time and worry can be saved if the builder will be careful to locate the track and hangers exactly according to the specifications or sketch, which reputable manufacturers are willing to furnish. Make the meeting stiles of the doors astragals. This outfit operates very satisfactorily, and is well liked because both doors can be hung close to the jamb at top and at both sides, but if it is desirable to use weather strips at the bottom, the doors should be hung with parallel tracks, as shown in Fig. 10. In this case, the jamb G should be furred out to meet the door, and the head jamb at H should also be extended out to meet door. If the hang-

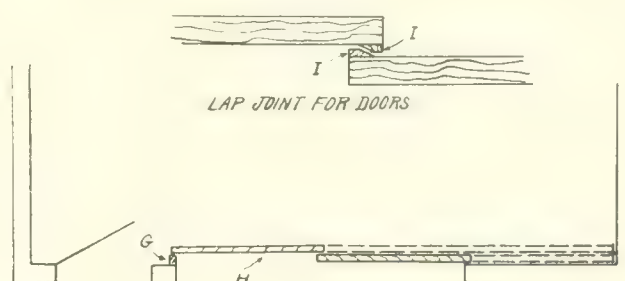


Fig. 10.

er aprons are set into the doors flush, less space is required between the doors for clearance in operating, but a better and cheaper method of closing the joint between the doors is shown in the sketch where I-I are strips $\frac{1}{2}$ in. thick and 1 in. wide, nailed to the doors. The doors can then have from $\frac{5}{8}$ to $\frac{3}{4}$ ins. space between them, allowing sufficient clearance for hanger aprons and nuts, and yet when closed the two strips lap from $\frac{1}{4}$ to $\frac{3}{8}$ ins., making a tight joint.

(To be continued next month.)

A man who has an ambition to be a master some day himself should qualify by being a good assistant master while he is preparing for his position.

Attractive House In Montreal West

The house shown on the left of the accompanying photograph is located in the western suburb of Montreal, Que., and was erected from the plans shown on this page.

The elevation of this dwelling is a very attractive one, the long, sloping roof over one side of the verandah



Attractive houses in Montreal West. Published by courtesy of the Asbestos Manufacturing Company, Limited, Montreal.

giving an odd, yet finished appearance. The wide steps leading to the verandah, the expansive bay windows, and the design of the verandah pillars and sup-

ports also add much to the appearance of the house.

As will be seen, the construction is of red pressed brick on a concrete foundation.

Special mention must be made of the precaution taken to guard against fire. In this connection the roof of the house and the roof on the verandah are worthy of note. Both are covered with "asbestoslate" shingles of a red shade to harmonize with the color of the brick.

Not only are these shingles a protection against fire, but, as appearance goes a long way in the sale of a house, they greatly enhance the selling value.

Many Features Inside

Inside, this house has many features—the cloak room off the hall, brick fireplace in the living room, and expansive bay window in dining room, with window seat in the bay. So much for the ground floor.

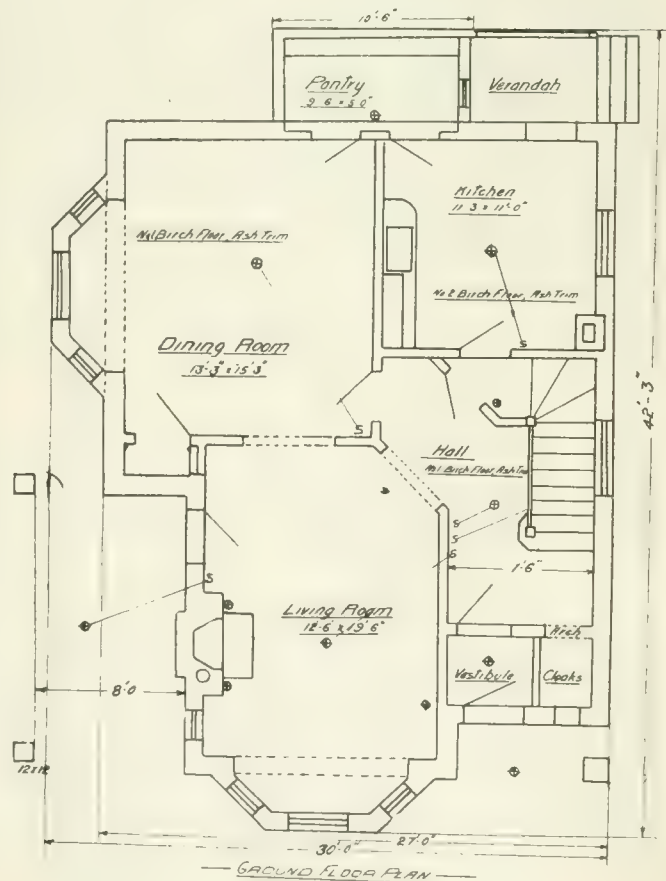
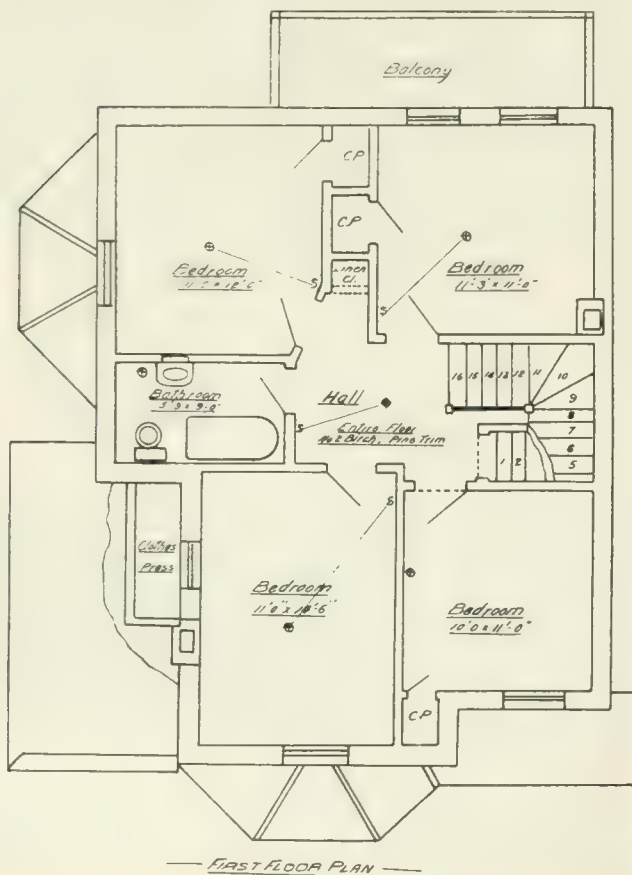
Upstairs, probably the big feature is the clothes press off the left front bedroom. In the construction of this, the space underneath the sloping roof, that otherwise would go to waste, has been used. The photograph shows a window cut in to ensure plenty of light. All the other bedrooms have clothes closets, although not quite so large as the one in the front.

A linen closet is shown at the rear of the upstairs hall.

Floors and Trim

All the floors on the ground floor, with the exception of kitchen and pantry, are of number 1 birch. In the

(Continued on page 24)

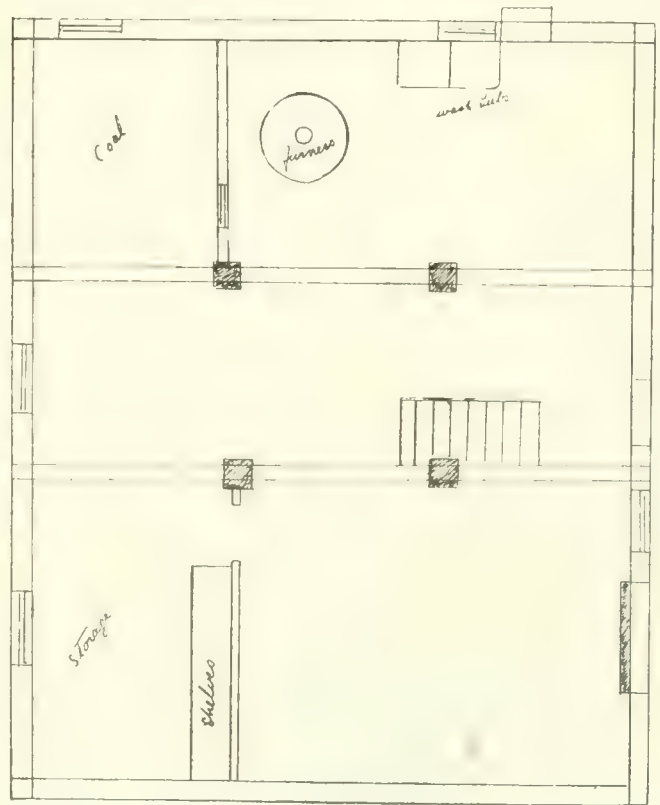


Floor plans of attractive Montreal suburban dwelling.

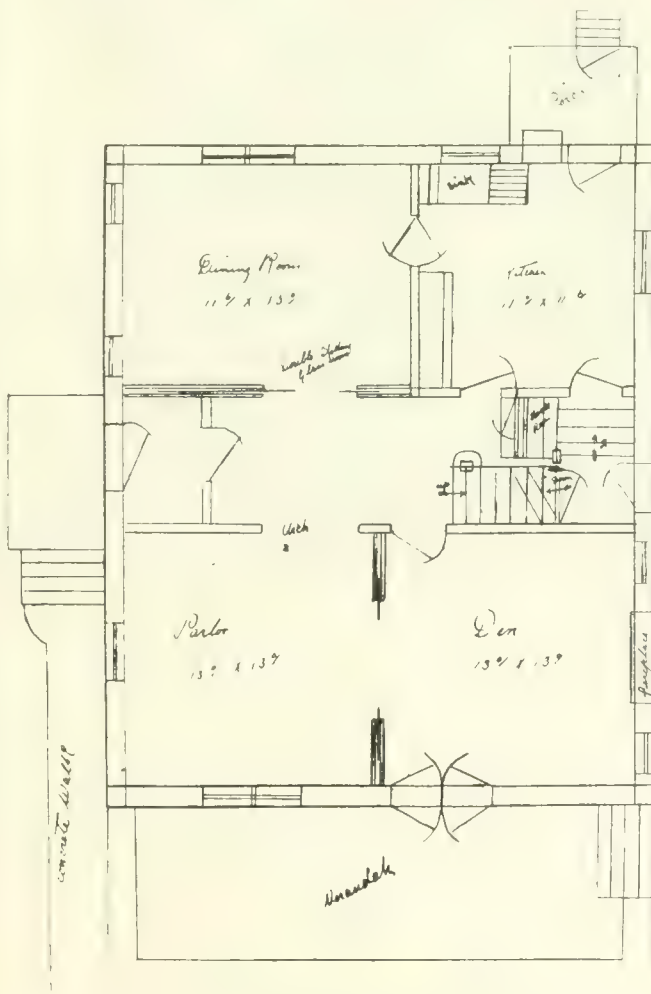


House with Side Entrance

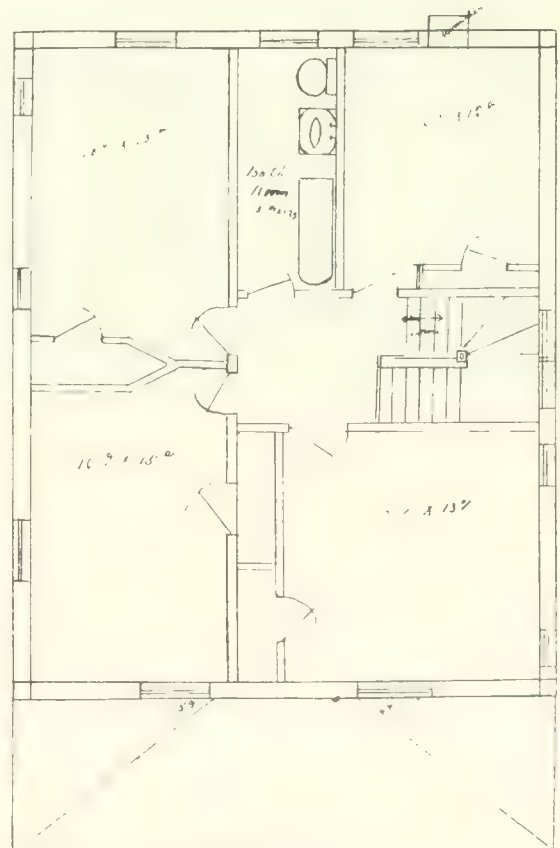
THE accompanying drawings show plans and layout of an Ottawa house, designed by E. A. Kemp, builder, Ottawa. It has a side entrance to a central hall. Such a design is an excellent one for a narrow lot where all the conveniences of a square-plan, centre entrance, are desired.



Plans of basement.



Ground floor plan.



First floor layout.

(Continued from page 23)

kitchen and upstairs hall number 2 birch has been used. The trim throughout the ground floor is in ash. Georgia pine is used on the first floor and attic.

Attic and Basement

While the attic and cellar plans are not shown, the former is divided into two large rooms, and the cellar has the usual coal compartments, furnace room, fruit and vegetable store rooms, laundry rooms, etc.

✱ ✱

Brickmakers' Convention in Toronto

The annual convention of the Canadian National Clay Products Manufacturers' Association, will be held in Toronto, January 26, 27 and 28.

The headquarters will be at the King Edward Hotel. Many excellent speakers have been engaged and much useful information will be gleaned.

The entertainment features include a visit to Dan Lochrie's theatre, a theatre party to Shea's, and a monster banquet at the Prince George Hotel.

Chas. A. Millar is president, and Gordon C. Keith, 32 Colborne street, Toronto, is secretary.

✱ ✱

Opportunities Offered Young Men by the Building Industry

The building industry offers to the young man who is seeking a vocation in life rare inducements and opportunities which from the standpoint of doing something worth while as well as from that of profit and ultimate success or, to put it vulgarly, getting rich, is concerned, are not surpassed in any business or profession. There are many reasons for the supremacy of building over many other lines of industry in which one may embark. There is scarcely a community of any size in the country in which there is not a shortage of dwellings or property for residence uses, look where you will if you please, and you will find this to be true of the larger cities in which the proportion of increase is naturally greater than ever. The creation of something is probably the most interesting thing to a growing, healthy mind that one can engage in.

Good building construction requires close attention, and the man who is ambitious to excel will find an abundance of opportunity to exceed his former attempts to attain perfection. It does not take so much money, but it does require a good clear head, a magnetic personality, integrity, enterprise and ambition to excel in what one undertakes. These qualities make for success in anything, whether it is in a profession or business, but they seem to count for so much more in building operations, that is, buying land, improving it with buildings and selling at a profit. It is a pleasure to watch things grow, to observe the precision with which every detail works into every other detail, to overcome all sorts of obstacles, and to have an ambition to attain perfection and to attain it is nearly as it is possible to do. Furthermore, there is scarcely any business or occupation in which one can embark in which there is so much liberty and freedom as there is in the building construction to the man who understands his business. He can begin and construct two

or three buildings at the opening of the season and have them rented before they are really finished and at a figure which will pay a good return upon the investment.

If he is so disposed after a while, after his accumulations justify it, to close up his business for a few weeks or a few months, go away and return refreshed and with increased zest go ahead upon a broader scale than ever, success in the past giving him assurance that he will succeed in his future undertaking.

✱ ✱

Builders Should Provide Substantial Scaffolding

That great care should be taken in the construction of scaffolding is shown by the following verdict returned by a jury investigating the death of four workmen who were killed on December 12 while engaged in construction work at a manufacturing plant in Cooksville:

"That Andrew Webster came to his death from a defective piece of timber in the scaffold upon which he was working, which broke and caused him to fall to the ground. The jury finds that the company in charge of the construction was responsible for failing to provide a proper plan and suitable material."

A despatch from Cooksville to the Toronto Globe said:

"Mr. Fuller, of the City Architect's Department, Toronto, in his expert testimony as to the safety of the scaffold, produced a piece of timber alleged to have been in the scaffold, which was cross-grained. Consequently, he did not believe that the scaffold was safe. When examined by Crown Attorney McFadden, C. Whitman, foreman of the gang, would not deny that he had conversation with Webster as to the safety of the scaffold."

✱ ✱

Fox Floor Scraper Blades

In sending the season's greetings to the editors and managers of The Canadian Builder and Carpenter, Mr. F. W. Champion, of the Fox Supply Co., Brooklyn, Wis., includes also the readers of the paper. Referring to the increase in their trade and business, he refers to the fact that Fox floor scrapers are now made in five sizes to suit the needs and requirements of the man with thousands of feet of flooring to dress who is making a business of this class of work, down to the man who has only one small job.

"The reason we use a special grade of high carbon steel rolled to our special analysis," says Mr. Champion, "is that in the manufacture of floor scraper blades we found that in order to obtain the peculiar temper required it was essential to combine both hardness and toughness. This we accomplished after testing and experimenting with every known brand of steel of American and English manufacture. To-day our scraper blades are used in a number of floor scrapers other than the Fox."

✱ ✱

Mr. F. S. Mallory, architect, has taken over the offices at 65 Adelaide Street East, Toronto, of the late Mr. F. H. Herbert, with whom he had been associated in practice for a number of years.

Sheet Metal Building Construction for Rural Communities

This article deals particularly with the use of sheet metal on farms and gives information on the selection and construction of sheet metal materials. The plans are by A. A. Gilmore, Architect, Preston.

BY EDWARD DREIER *

SHEET metal roofing and siding is widely used in Canada, the farmers being the heaviest buyers. Going through the country one cannot help but notice the large number of buildings covered with this material. Insurance against fire and lightning, and lack of fire protection have made farmers turn to fire-proof materials such as sheet metal.

Wide Range of Uses of Sheet Metal on the Farm.

Sheet metal having so many uses readily adapts itself to general farm buildings and uses. We find sheet metal tanks, culverts, troughs, silo roofs, drive sheds, garages, piggeries and the more common roofing and

various Canadian companies, will, as has been shown from installations made years ago, has a very long life.

The proper method of covering a building with metal is to use close sheathing and metal shingles on the roof, and nailing strips with corrugated iron on the sides. Corrugated iron, being very stiff, will give added strength to the building, as well as being an excellent protection.

What a Builder Should Consider in Selecting Material.

Nowadays the man who intends erecting a building says, "Which brand of metal roofing will I buy?" He



Large steel truss barn of Dominion Canners Co., Limited, on their Bow Park Farm, designed by A. A. Gilmore, Architect. This building which is 150 ft. long by 38 ft. wide is covered with "Acorn" corrugated iron, metal cornices and starter. The roof is fitted with lift roof lights and ventilators of same make. The doors are hung on special bird proof track and fitted with modern hardware.

siding materials advertised extensively in the farm papers.

Canadian manufacturers of metal products recommend metal shingles. From a point of durability they give long years of hard wear. The metal which goes into their manufacture is subjected to severe strains in heavy presses which form the shingles into shape. Iron for shingles must be of a special quality or it could not stand this strain and would break or be weakened so that eventually it would give way. So, of necessity, the metal must be more pliable and of the highest quality.

A metal shingle roof is practically one great sheet of metal which acts as a protection against weather elements, fire and lightning. Such a roof, using any of the standard grade of shingles manufactured by the

sends to different manufacturers for catalogues and studies the merits of each make and chooses according to his likes and dislikes. He cannot go wrong on any of the standard makes.

Requires Qualified Builder to Put on Metal Roof.

While most of the companies say that any handy man can erect metal roofs, I do not think it advisable. It can be done, but where the building is not true or straight, or where there is cutting to be done, the results are not always satisfactory.

Putting on a metal roof is like doctoring a sick animal. You might be able to do it yourself, but the skilled man would get better results. If I were buying a metal roof I would go to the local agent of one of the well-known manufacturers and would buy the roof and

* Of the Metal Shingle & Siding Co., Preston, Ont.

have him erect it. He has a reputation to sustain and will do a good job.

Using Corrugated Iron for Roofing.

For many of the cheaper grades of buildings, corrugated iron is used for roofs as well as sides. This metal product is made of a slightly cheaper grade of iron than metal shingles but it gives excellent service as a siding. There are many buildings on the farm which might need a shelter roof and this material adapts itself readily.

Protecting Against Prevailing Winds.

When ready to begin laying corrugated roofing on a building, consider first from which direction your heaviest winds and rains usually come. If from the right, begin laying the roofing at the left-hand side—if from the left, begin at the right-hand side. It is always wise to take this precaution so that the prevailing wind does not blow into the laps of the sheets. The sheets that are nailed down perfectly tight will always be wind tight, but sometimes a sheet is not nailed tight and wind gets in and causes the sheet to rattle. Lay the first sheet at the lower corner of your roof—either right or left side, as explained above, allowing one corrugation of the sheet to project over the roof boards at side gable, and also from two to three inches of the end of the sheet to project at the eaves, depending on size and location of eavetrough, if used. Keep the corrugations in straight lines up and down the roof to make a neat appearing and effective job.

Procedure in Laying Corrugated Roofing.

First, hammer down the projecting corrugation at side gable, over the edge of the roof boards and nail it there securely in place. Then nail across the sheet through the tops of alternate corrugations close to the eave. Three or four rows of nails are used to each sheet, depending on the length. Lay the second sheet side by side with the first, lap it over the first sheet $1\frac{1}{2}$ or $2\frac{1}{2}$ corrugations, and then nail the two sheets together through this lap, the nails being driven straight down through the tops of the corrugations at every bearing.

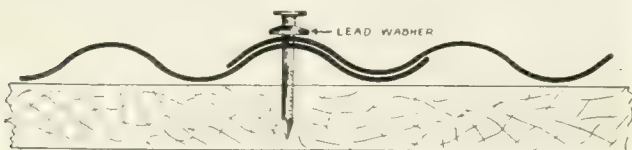
Also, nail across the eave as on the first sheet, each alternate corrugation. The third sheet is laid exactly the same as the second, and the work is continued, sheet by sheet, until you complete the first row across the full length of the roof.

Then begin on the second row of sheets and apply them as in the first row, allowing the $1\frac{1}{2}$ or $2\frac{1}{2}$ corrugation side lap and 3 or 4 inches lap down over the first row of sheets, driving the nails through both sheets, at end laps as well as side laps. Complete this row across the roof before beginning with the third row, and continue until the roof is completed.

Always drive the nails vertically and through the tops of corrugations as described above.

Lay Roofing Along Straight Lines.

I would urge particular attention to keeping straight



Showing how to nail corrugated sheets when used for roofing.

lines throughout. It would be a good plan to strike chalk lines across the roof at the eave as well as up and down, so that you will be sure to have the corrugated sheets straight.

Gauge of Sheets to Use in Various Situations.

Corrugated sheets of light gauges should not be applied to wide spaced purlins. It will be equally as cheap, and much more effective, to place purlins of 1 x 4-inch stuff, say 8 to 12 inches apart. In this case the rafters can be at any distance your best judgment dictates, and need not be placed so accurately as would otherwise be necessary. Where the heavy gauges of sheets are used, sheathing boards may be dispensed with, so far as providing support for the roofing is concerned, and purlins substituted, thus economizing in lumber.

With No. 26 and No. 28 gauge, I consider it advisable to use sheathing of common stock boards, about 2 ft. centres. For steep roofs a lap of three inches at the ends of sheets is ample.

Where sulphurous fumes will come in contact with the under side of a roof, use a felt lining between the sheathing and the roofing. When two or more length sheets are used, place the shortest sheets nearest the



Great C.P.R. elevator at St. John, N.B., erected by John S. Metcalf, general contractor. One of Canada's largest grain elevators. Capacity over two and a half million bushels. On this elevator there are nearly 1,000 squares of corrugated iron, metal cornices, flashings and 5,000 feet of 'Underwriters' hollow metal window'.

ridge. Be careful to lay sheets so that the corrugations of each will be in line accurately from ridge to eaves.

Erecting Corrugated Iron for Siding.

Put the studding three or four feet apart and nail the sheets to batten strips, placing these strips say, two feet apart and across the studding horizontally.

Nail siding vertically through the tops of corrugations and horizontally in the valleys of corrugations. When studding is used, 2 x 4 inch lumber will answer usually.

Do not let the siding have contact with the ground, but always use a base board.

For siding, lap sheets but one corrugation.

If siding is to be used for barns, or uses where there



Showing how to nail corrugated sheets when used for siding.

is a heavy pressure or strain against the sheets from the inside, it will be necessary to use sufficient sheathing to hold enough pressure away from the sheets, so that they will not be torn from the nails.

Some Good Rules to Go By.

Buy a well-known brand from a firm or agent who has a reputation to protect.

Have a competent man put your roofing on.

See that you have a full 3-inch end lap and a corrugation and a half side lap.

Do not lay metal roofing on any sheeting but the best grade.

Do not lay metal roofing on green sheathing boards.

Be sure any metal roofing is well and firmly nailed with galvanized nails, capping them with lead washers, when using them for corrugated iron.

Part of the ad. is reproduced herewith, as follows:

"Notice to all prospective builders of business rooms, apartment houses, dwelling houses, garages, stables, and other buildings. For the next thirty days we will sell to you the following building blocks at prices so low that you cannot help but buy them, if you are going to do any building in the spring. We are heavily overstocked on these sizes and are willing to give the people of Medicine Hat the advantage of our heavy discount."

Prices were then quoted, and the ad. continued as follows:

"This large reduction in price will run only until January 1, 1915, and all sales must be for cash.

"If you want good, cheap, fireproof building material, now is your chance.

"After January 1, the regular prices will be charged."

Brick Prices in Medicine Hat Take Big Drop

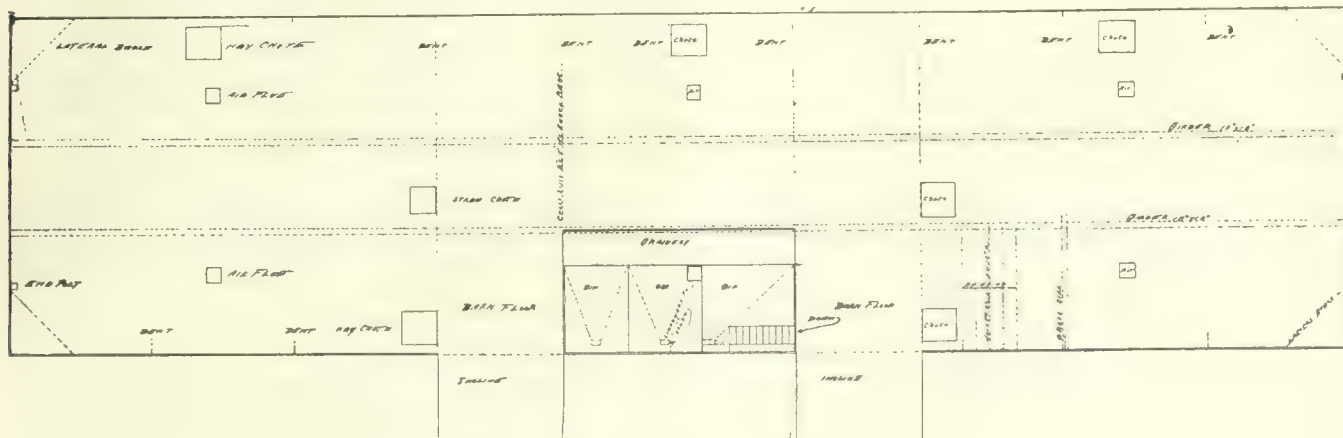
While brick manufacturers in all centres have materially reduced prices on their material, makers in Medicine Hat, Alberta, have made very substantial cuts, and are advertising the fact extensively in order to get business.

In a recent issue of the leading Medicine Hat newspaper was a large advertisement, calling builders' attention to the reduction and quoting the new prices

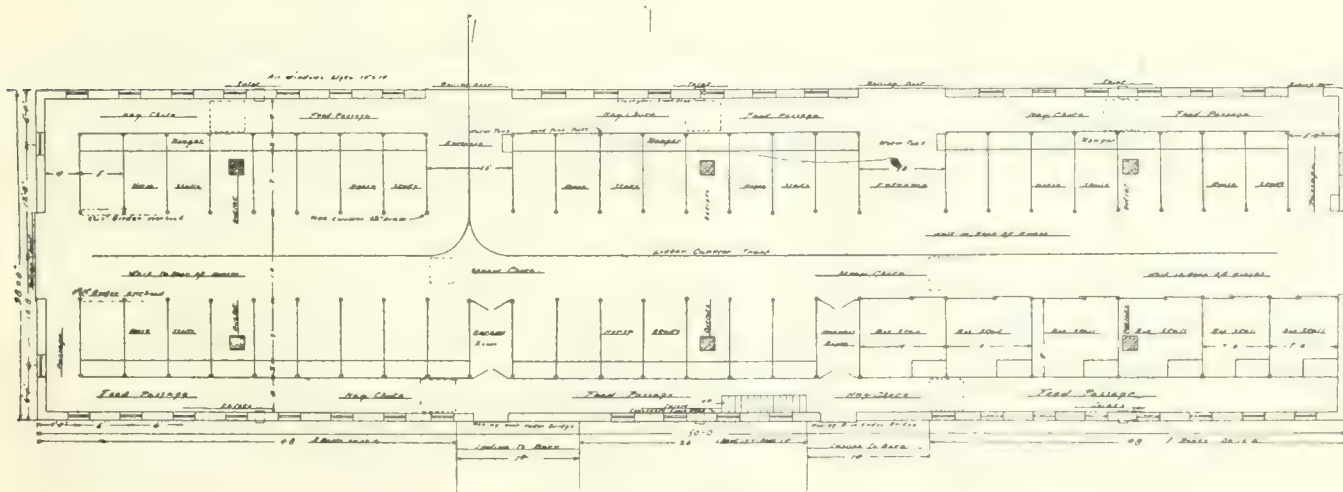
Keeping Tools From Rusting

To keep tools bright, melt slowly together six parts lard and one of rosin. Add benzine in the proportion of one pint to a half-pound of lard. A light coating of this rubbed on the tools will effectively prevent them from rusting.

What you do to-day is worth more than what you intend to do to-morrow, but, just the same, it is always well to think of bigger and better things in the future.



Floor plan of Bow Park Farm Barn



Plan of Horse Stable for Bow Park Farm



Carpentry and Woodworking



Mirror a Good Elevator Accessory

In the Parliament Buildings, Toronto, the elevator in the east wing is in an alcove. For the elevator operator to see if any people are approaching the elevator, therefore, it was necessary for him to leave the operating lever, and look out the door, until a mirror scheme was adopted similar to that on street cars and automobiles.

The glass is set at an angle of about 45 degrees, so that the operator can see, without moving from his position in the elevator, the whole corridor. If, therefore, anyone is approaching the elevator along the corridor, the operator can keep the elevator waiting the few seconds for the additional passenger.

On the other hand, it is not necessary to delay the elevator while the operator looks out to see if anyone is approaching the cage. A great number of additional trips can thus be made at busy hours.

* *

Filing Useful Clippings

A Winnipeg subscriber to The Canadian Builder & Carpenter described to a representative his method of filing clippings. He maintains a large scrap book, which he has divided roughly into a number of departments, such as floor work, built-in furniture, fine house finishing, such as moulding, etc., exterior and interior decoration, etc.

An index is kept of all the articles, and each clipping is entered in the index with the number of the page on which it is pasted opposite. Thus, in referring to clippings on a certain subject, they will generally be found very close together.

* *

The Care of Oilstones

There are three objects to be attained in using and caring for an oilstone: First—to retain the original life and sharpness of its grit; second—to keep its surface flat and even; third—to prevent its glazing.

To retain the original freshness of a stone, it should be kept clean and moist, says C. F. Gillette. To let an oilstone remain dry for a long time or expose it to the air tends to harden it. A new stone should be soaked in oil for several days before using. All India and Crystolon stones are oil-filled by a patented process before leaving the factory, which insures a moist, oily sharpening surface with the use of only a small quantity of oil, and eliminates a very disagreeable operation.

To keep the surface of an oilstone flat and even merely requires care in using. Tools should be sharpened on the edge of the stone, as well as in the middle, to prevent wearing a trough-shaped depression. It is impossible to prevent a stone becoming slightly hollowed with long usage, but this can be remedied by

grinding the stone on the side of a grindstone or by rubbing it down with an abrasive brick.

To prevent an oilstone glazing, the user must first understand what causes a stone to glaze. This can best be explained by showing why oil and water are used on sharpening stones, and how they should be used.

The word "oilstone" has come to be applied to all stones used for sharpening mechanics' tools, from the fact that it is necessary to use oil on most of them for two purposes; first, to prevent the stone from heating the tool, which draws its temper and ruins the best tool instantly; second, to keep the particles of steel ground off the tool from entering the pores of the stone, which would soon fill them up, producing a glazed surface.

Most coarse-grained and all soft stones can be used successfully with water, although they must be generally termed "oilstones." On such stones, water should be used plentifully to carry off the powder rubbed up by the tool. Most water-stones are quick cutting and leave a coarse edge, but a much finer edge can be procured upon the same stone by using just enough water or oil to rub up a paste. This paste, when kept on the stone, will give a finishing edge, but should be thoroughly cleaned off before putting the stone away.

Fine-grained, hard stones should always be used with oil, as water is not thick enough to keep the steel out of the pores. The dirty oil should always be wiped off the stone, thoroughly, as soon as possible after using it. This is very important, for if left on the stone the oil dries in carrying the steel dust with it and causing the stone to glaze. Cotton waste and kerosene oil, gasoline or ammonia are best for cleaning a stone and are always to be found in a shop. Never use turpentine to clean a stone, for it is gummy and fills the pores of the stone. Some carpenters use shavings, but these are apt to leave the stone full of dust. An ordinary clean rag would be better.

How to Select Oilstones

The question now arises, how shall we select a stone for our use? First, we should consider the purpose for which a stone is to be used. Do we want a fast-cutting stone in preference to a slow cutting stone. There are three kinds of cutting edges, coarse, medium and fine; also, oilstones are made in three grades—coarse, medium and fine.

The coarse stones are used for sharpening large and very dull tools, nickel tools, machine knives and for general use where fast cutting is more desirable than fine finish.

The medium stones are for mechanics' tools in general, more particularly those used by carpenters and in woodworking establishments. This grit gives a medium fine stone.

Fine stones are used by machinists and engravers,

die workers, instrument makers and all who require a very fine, keen-edged tool.

The Coarse-Edged Tools

Practically all the coarse-edged tools are knives. By "coarse" edge we do not mean it is not a sharp edge. The ideal edge for a carving knife is a "coarse" edge—best because such an edge will do its work perfectly and because to take extra time to get a finer edge on a slower cutting stone would be just a waste of time. Knives do not require a fine edge because they are always used with a diagonal or saw-like motion. This adds to the cutting efficiency and at the same time the slight coarseness of edge, in its turn, adds to the saw-like effect, again making the cutting easier. These tools include canvas cutting knives, carpet knives, carving knives, bread knives, paring, kitchen household and farm knives of all kinds. Some of these tools require a finer edge than others, but all can be given the best edge for their work on a coarse stone.

Requirements of Medium Edge Tools

Medium edge tools require more smoothness than a coarse edge affords, but yet do not need extreme fineness. These are the tools used by most mechanics—more particularly the broad, bevel-edged tools such as chisels, planes, draw knives and others used by carpenters and wood workers.

One would naturally suppose that to secure a medium edge he should use a stone of medium grit. This is not entirely correct. The average mechanic buys the medium grit stone in order to secure both fast cutting and a fine enough edge from one stone. Except for special uses, the more satisfactory way is to use a coarse stone for rapidly cutting the edge down until it is ready to finish and then to finish on a fine stone to whatever degree of fineness is desired. For this reason a combination stone, which unites a coarse stone and a fine stone, is more useful than a medium stone. Combination stones are becoming more and more popular among users of oilstones.

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Placing Confidence in Foreman Creates Efficiency

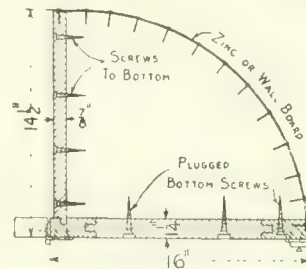
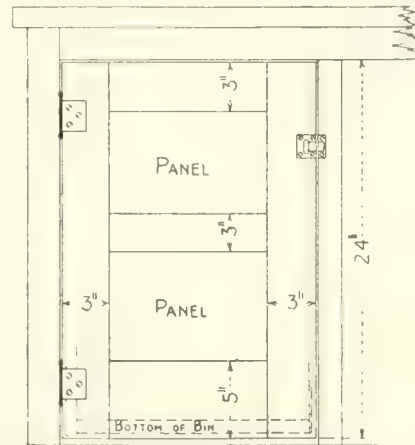
No matter how able your foreman may be, he cannot get high-grade work out of low-grade men. As a matter of fact, the foreman is usually a better judge of men than his boss. He it is who comes into most intimate contact with them. He knows who the slow ones are as well as the quick ones. He can, after a few days' observation, tell who among the new men are up to the right mark—efficient, alert, reliable workmen. For this reason the most successful contractors usually give their foreman considerable latitude in hiring and discharging help, all of which has a good effect on the men themselves, who are inclined to look down upon a foreman who has not the power to discharge them.

Able foremen can do much toward increasing the efficiency of a gang by the way they place their men. Putting three or four slow workers together always results in slowing down the work. Placing several hustlers together frequently speeds work up beyond the point where it will be well done. The most satisfactory way is to mix men up, putting a slow man alongside of a fast one, which seems to increase the efficiency of both.

Details of Flour Bin

In a recent issue of The Canadian Builder and Carpenter were published details and description of a handy flour bin. Details of another design of flour bin are reproduced herewith. These appeared in Building Age, and the contributor states:

"I find this design a lot handier than the tilting kind, as it is almost impossible to make one that will



Front elevation and end section of flour bin.

balance when full and when empty. The one shown here, however, will balance at all times, as the reader will understand that it opens like a door.

"The parts on which the door is hinged must be solid and the door must be well made and hung with not smaller than 3 x 3 in. hinges. The dimensions I have here given will hold 50 lb. of flour and provide room for rolling pin, sifter, etc. As stated above, I find this style of bin to be much better than the tilting kind or those that roll out on the floor. The first is hard to balance, and the second pulls hard when full.

"The circular part, as shown in the end view, can be made of zinc or tin, but the best material is wall board, which can be obtained at almost any lumber yard."

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Staining Fir

A good stain for fir is made by using one-third oil, one-third benzine and one-third benzol, with enough driers and the proper amount of oil colors to get the shade wanted. The stain will penetrate the wood so well that it has the appearance of a water stain with the advantage that no sandpapering is needed.

Give the stain one coat of shellac and one coat of varnish, full body, and the result will be a job as good as most work receiving two coats of varnish.

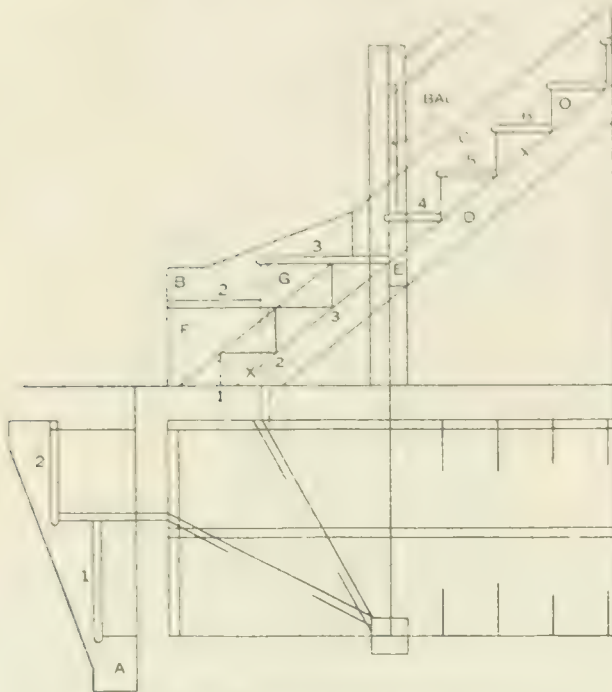
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Think for yourself, but don't think you have the only thoughts that are worth while.

Framing Winding Stairs

Herewith is a good method of framing winding stairs at the mill. The sketch shows the horse against the wall, with the wall string cut over the top of treads. Lay out the horse to the floor, cut from riser 4 up. Nail on blocks F and G. For winders the outside horse is mortised into newel at riser 4. Tenon E; saw out wall string, place on top of treads, press tightly to wall and cut the nosings by sawing with a fine saw down the face.

When required to get out the rough work, to be put up and plastered before putting on the finish, proceed as follows: Get rise and run. Make a pitch board, O,



A good method of framing winding stairs at the mill.

gauge line, XX, and space up with dividers. The first riser is the thickness of a tread narrower. After marking the first horse, transfer the points on line XX to a rod and use it for marking all horses. Save the rod for getting out the finish.—Wood-Worker.

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French Doors and Casements

French windows, so-called, which are really doors, are usually in a more or less protected location, generally opening on a porch protected by the porch roof. In such a case it is not necessary to take any more precautions than with an ordinary door and the jambs are usually detailed in the same manner as ordinary door frames. If they are to be placed in a more exposed position they should be detailed in the same manner as the casement windows.

French windows and casement windows, if properly designed and used, add remarkably to the appearance of a cottage. It is customary to detail them with small lights, and in fact their appearance is greatly improved by keeping the lights small. The appearance is improved if the panes are slightly higher than they are wide. In the case of a cottage, for instance, the French windows on the lower floor open into the living room and give more light than would the ordinary window, as

well as adding an air of distinction to the cottage. The upstairs casements are three feet high and can be opened so as to give the full benefit of the entire window space.

These windows can be fitted with fixtures which will permit of their being fastened open any distance if they open outward. They are usually fitted with foot bolts and cupboard locks, and are fastened at the top with a spring bolt to which a chain is attached, by pulling which the bolt can be unfastened. Sometimes a basquille lock is used. This consists of a knob or turn-screw at the centre of the meeting rails with a bar running to the top and bottom of the sash. When the knob is turned the rods push upward and downward into eyelets in the casing, fastening the window.—Building Age.

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Strength of Glue

A series of tests to determine the strength of glue were made by Messrs. O. Linder and E. C. Frost, and reported to the recent meeting of the American Society for Testing Materials. The results show a strength of from 1,100 to 1,950 lbs. per sq. in. for a glue made of 1 part dry glue and 3 parts water, and a strength of 60 to 70 per cent. of the above figures for a 1:5 glue. Prolonged heating lowers the strength of the glue. Glue solutions heated to 150 deg. F. for 20 hrs. showed a loss of 30 to 45 p.c. in strength.

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Remove the Nails

In restacking old lumber see that all boards are piled with nails pointing downward. Better still, remove the nails if convenient. It is far better to lose an hour than lose a foot from blood poisoning.

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Association Formed by Building Managers

Proprietors and managers of the big buildings in Montreal have formed an association called the "Building Managers' Association of Montreal," the objects of which are the interchange of ideas and the discussion of matters of interest in the construction, maintenance and operation of buildings, including such questions as legislation, taxation and insurance.

President, Mr. J. Stevenson Brown, Dominion Express Building.

Vice-President, Mr. Herbert J. McKeon, Quebec Bank Building.

Secretary-Treasurer, Mr. Clarence Mitchell, Transportation Building.

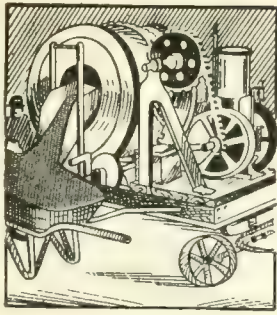
Council, Mr. W. J. Carmichael, Bell Telephone Building; Mr. U. H. Dandurand, Dandurand Building; Mr. Royal Ewing, Eastern Townships Bank Building, and Mr. C. S. Bagg, Power Building.

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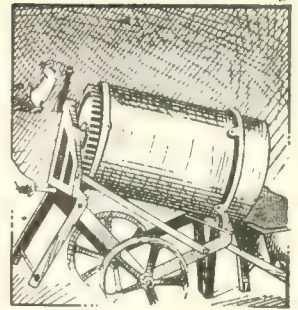
Montreal Exchange Secretary Resigns

R. L. Werry, who has been secretary-treasurer of the Montreal Builders' Exchange for the past two years and a half, has resigned the office. Mr. Werry has not yet decided upon the line of business he will take up on leaving the exchange.

The board of directors have appointed a committee to find a new secretary.



Concrete Department



Concrete Chimneys

The accompanying illustrations show concrete chimneys and the method of their construction. Concrete chimneys are poured in a plastic state and harden into so much solid stone. They have no joints, and sparks or burning soot cannot come into contact with surrounding woodwork.

How Concrete Chimneys are Built

Small concrete chimneys can be constructed in two ways. An outer and inner wooden form, between

side dimensions of the chimney. Where the house is constructed with concrete walls, the chimney is cast as an integral part of the walls, and, consequently, needs no separate foundation.

Making of Forms

The forms necessary are simple and easily made. Fig. 2 illustrates the method of constructing forms and the manner in which they are held securely together. In this illustration will be seen the two flues which constitute the inner form. To make the depositing of the

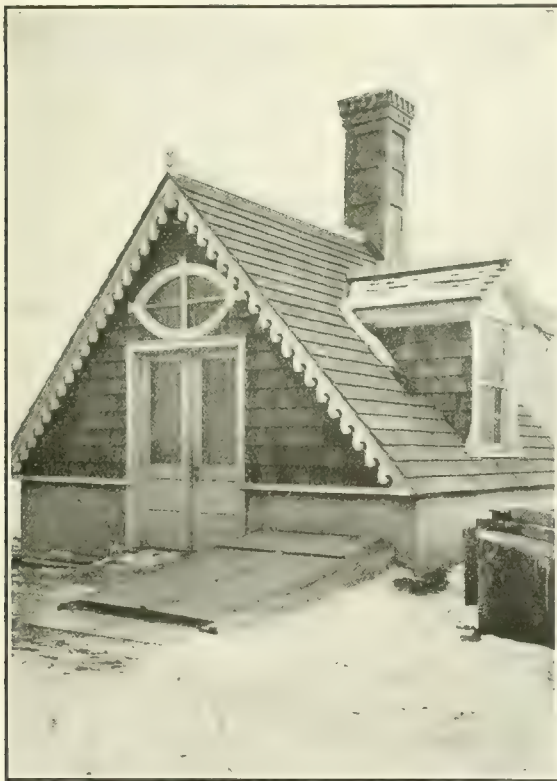


Fig. 1.—A concrete chimney in ornamental design.

which the concrete is poured, can be used, or the inner form may consist of a clay or concrete tile, either round or square in section. Where the tiles may be procured easily, it is a more simple operation to use them for the inner form.

Foundation

All chimneys, regardless of size, should have good foundations. If the chimney is not carried down to the depth of the cellar, it should have the foundations at least below frost line. For ordinary conditions a depth of three feet below ground level will suffice. The foundation consists of a concrete slab 12 or 18 inches thick and 9 inches larger on every side than the out-



Fig. 2.—A concrete chimney in process of construction. The flue lining inside the wooden forms serves as the inner form.

concrete and the placing of flues an easy matter, forms are built up as the work progresses. Where the chimney is hidden by interior plaster and the walls of the building, only rough forms are required, such as are shown in Fig. 2. When roof level is reached more attention must be given to the forms in order to secure a smooth and even surface. Therefore see that the boards

form tight joints and that each section of form is properly aligned.

If desired the chimney can be relieved with a simple ornamental design, such as is shown in Fig. 1. In providing for this it should be remembered that the ornamentation must be placed on the inside of the outer form and that the design will be reversed on the surface of the chimney.

Concrete and Reinforcement

Concrete for this work is proportioned 1 part Portland cement to 2 parts sand to 4 parts crushed stone or gravel. In mixing the concrete it is convenient to remember that 1 bag of Portland cement is equivalent to 1 cubic foot, so that the proportion can be stated as 1 bag of Portland cement to 2 cubic feet of sand to 4 cubic feet of stone. A bottomless measuring box of 2 cubic feet capacity is convenient in measuring the materials. The concrete is mixed mushy wet and well tamped and spaded into the forms.

While not absolutely necessary for small chimneys, it is a wise precaution to embed vertical $\frac{3}{8}$ -inch or $\frac{1}{2}$ -inch steel rods in each corner of the chimney. It is often the custom to wrap the tile flue forms in one or two thicknesses of tar or building paper so as to leave a small space around the flues, thus allowing for expansion of the concrete when heated, the purpose being to prevent it from cracking.

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Laying Concrete in Freezing Weather

It is generally conceded that concrete may be laid during light freezing weather provided certain precautions are taken. In mass concrete such as foundations and abutments, freezing does little damage except to blister the outer surface; but in particular work, concreting is not to be recommended if the freezing is severe. In case that it is found necessary to pour any concrete when the weather is freezing slightly, the following points should be observed:

1—Use hot water as little as possible. This hastens the setting of the concrete.

2—Mix a small amount of common salt with the water, one pint to 18 or 20 gallons, with the addition of one ounce for each degree below freezing. Another recommendation for using salt is one per cent by weight of the water used for each degree below freezing.

3—When the temperature is only a few degrees below freezing, heating the aggregate has proved to be a satisfactory method. The heated aggregate not only accelerates setting, but it lengthens the time before the mixture becomes cold enough to freeze.

4—Covering the concrete with straw or manure will protect it from freezing until the concrete has had time to set. All frozen material should be removed from an aggregate before mixing.

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How Farmers Build Concrete Silos

A writer in Breeders' Gazette, a farm paper, comments on the number of cement silos that have been built in his district, and gives some interesting information on the way these are constructed. He says:

There are several different styles of these silos built. A few are building the solid concrete wall reinforced with steel, but it takes more material than some others. In the cement block silos we have different styles, such

as the solid block 3 or 4 inches thick and the 5, 6 and 8-inch hollow block.

Cement silo blocks are made of one part cement to five parts sand and gravel. The 3, 4 and 5-inch blocks are made 8 inches wide and 20 to 24 inches long, but blocks 8 inches thick are 8 inches wide and 16 inches long, with heavy wire encased in grooves between every third and fourth tier and making the outside wall without bands showing. With the edges of the blocks bevelled this makes a very neat looking silo, but takes twice the amount of concrete as the 3-inch solid block and keeps the silage no better. The 3, 4 and 5-inch block silos have bands, either flat or round, outside at every third and fourth tier. All have continuous doors from bottom to top, which is a great saving of labor in removing silage. The door space is 24 inches wide, or the length of one block. Some have no door frame, simply lapping the doors about 3 inches on the inside of the wall, and the same distance on each other. Doors are made of two thicknesses of flooring with tarred paper or roofing between. We place a strip of wood $1\frac{1}{4} \times 4$ inches back of each hoop between the ends of the blocks to take up the strain in tightening the hoops, and to serve as a ladder.

For the foundation we dig a trench 20 or 30 inches deep or to solid earth; 8 or 10 inches wide at the top and about two feet wide at the bottom; then fill this with stone and concrete. After the wall has set we dig out the inside case down at the bottom of the wall. Draw a circle on the wall the size of the silo, and set up 2 x 4's for the ends of the blocks to butt against in the doorway. Any mason can do the work, and many a young man here after helping one or two seasons will be head man after that and do good work. One should build two or three courses of blocks above where he wants to put in hoops, and be careful not to draw the hoops too tight, as it might start the blocks from the mortar. One should put the ladder strip back of the hoop at the door before tightening.

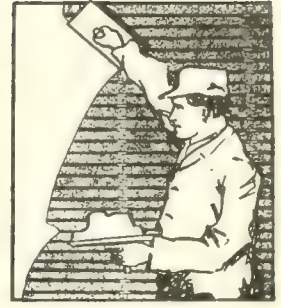
The scaffolds are always built inside of the silo. Some set up four long poles, nail on cross pieces, and move the plank up as they work to the top, and take off lengths as they plaster down after the blocks are laid. Others set up four 2 x 6's on end and use lines and pulleys to draw each corner of the scaffold up, always using bolts when in place to avoid accidents. The more modern scaffold is made with one string centre post made in sections to the proper height, using blocks and line to raise or lower, and bolting in place until moved again.

When making blocks place $\frac{1}{2}$ in. bolts in six blocks, letting the thread ends project $2\frac{1}{2}$ inches. These are put in the top tier to bolt the plates to. We lay the blocks in good cement mortar with one-third or one-fourth lime added, so it will not set too quickly, and use good sharp sand. As the blocks are laid one should point up well on the outside as he goes up, and plaster inside as he goes down, putting on one part cement and two parts sharp sand $\frac{1}{4}$ in. thick. After the silo has dried four or five days make a cement wash consisting of cement and water to the thickness of cream, keep well stirred and apply with a whitewash brush. A fresh wash should be applied once in four years. This will make a receptacle as good as a glass case to preserve corn in, and every pound will be good to the wall, providing there is moisture enough when it is put in. When the inside of the wall is dry one can take down the 2 x 4's placed in doorway.

The roof is easier to build after the silo is filled. There are many styles of roofs. I prefer the flat roof, as one can stand on it when putting up the blower pipe.



Brick Work *and* Plastering



Applying Stucco to Brick Work

In applying stucco to old brick walls, the most important point is that the old surface must be thoroughly cleaned; if coated with paint, this must be scraped or burned off, and if uncoated, the surface must be washed with a solution of muriatic acid mixed in the proportion of 1 part commercial muriatic acid to 5 parts of water. The wall should be scrubbed with this solution, then thoroughly cleansed with clean water.

The joints between the brick work should be picked back from the face of the bricks to a depth of $\frac{1}{2}$ in. to $\frac{3}{4}$ in., so as to form a key for the plaster. Immediately before applying the plaster, the surface of the walls should be thoroughly soaked with water, for, on account of the porous nature of the brick, water would be absorbed from the plaster, thus injuring its strength, unless the brick were thoroughly saturated beforehand. After this the work does not differ materially from ordinary stucco construction.

Sometimes, instead of applying the cement plaster directly to the brick, metal lath is fastened to the brick and the stucco placed on it. Metal furring strips are attached to plugs driven into the joints of the brick work, and the lath is fastened to these strips. This method of construction is always advisable for covering brick chimneys so as to prevent cracking due to extreme temperature changes.

In applying stucco to new brick work, the procedure is practically the same as described, except in the matter of cleaning off the surface, though the walls should be brushed to remove any mortar that may have splashed on the surface of the brick at the time of laying up the wall.

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Brick Work in the Garden

Brick is used for entrance pillars to driveways with good effect. It is also suitable for romantic garden walls. An article in a recent issue of Brick & Clay Record describes one of these garden walls. The wall encloses the rear garden of a residence and affords delightful seclusion to the grounds. At intervals the plainness of the wall is overcome by square pillar-like creations, and every now and again a slight curve in the wall's alignment is occupied by a long, comfortable garden seat. The grounds enclosed consist principally of beds of flowers and small plots of lawn, among which winds a network of graveled walks and beyond the wall lies a veritable wilderness of trees. The red brick contrast admirably with the green of the foliage and the wall forms a natural association between the house and its setting.

Brick Pergola and Summer House

The garden pergola and summer house may be charm-

ingly built of brick. The pergola in one garden covers a brick-paved walk which leads from the side entrance of the house and, near its terminus, enters an oddly designed summer house. The pergola pillars of simple, square lines, are of brick, as is also the low wall that borders the walk on either side. The overhead girders and cross beams are of brown-stained timbers.

The summer house, to which the pergola leads, possesses massive arched gables and its floor is also of brick, to correspond with the walk. From the pergola girders, at intervals, are suspended hanging baskets, and over the pillars and girders is trained a graceful tracery of clinging vines. The floor of the summer house is slightly elevated above the walk, and the retreat is provided with comfortable garden seats.

Different Type of Brick Wall

Another garden wall was constructed of brick with the low walls forming a graceful curve toward the rear entrance with a rather massive pillar at either side. Near the gateway on each side a small brick seat is built directly into the arch. Even the graveled walk is edged with brick, which helps to enhance the general effect. The walls are partly covered with vines and in the background is a charming arrangement of decorative cedars, bamboo and other foliage. This is a view from the rear porch of the house and the walls mark the dividing line between the formal garden and the informal "forest" beyond.

Elaborate Summer House of Brick

Brick was used in the construction of an elaborate summer house. The grounds here are strictly formal and brickwork forms a prominent feature of the garden architecture throughout. There is considerable terracing, and all walks, steps and bordering walls are of brick. The walls, however, are coped with cement and the pillars of the second storey of the summer house, as well as the railings, are likewise of cement. The summer house is a particularly charming feature. The upper floor is open on all sides and possesses merely a lattice and beam covering. The lower portion is partly enclosed by the brick terracing walls and its pillars are also of brick. The flooring of both storeys is of brick, laid in herringbone design, and the small lily pond that lies just below the lower portion is edged with brick.

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The Use of Lime in Mortar

The use of lime as a binding material for mortar originated in the remote past. It is probable that some savages when using limestone rocks to confine their fire noticed that the stones were changed by the action of the heat, says a report of the U. S. Geological Survey.

A passing shower may have slaked the lime to a paste, and they discovered that the paste was smooth and sticky and was a better material than clay to fill the crevices in their crude dwellings. From this discovery it was but a step to add sand to the paste in order to produce a mortar.

Interior Plastering on Concrete Block

In answer to a question as to whether or not it is advisable to do interior plastering on concrete block walls without furring and if it is advisable to plaster direct on concrete block walls which have a continuous air space, a writer in *Concrete-Cement Age* says that all single masonry walls are subject to condensation of moisture upon the interior, commonly known as "sweating," and it is not generally considered safe

continuity of the air space. If it is not substantially continuous the wall should be furred just as it would have to be in the use of a single wall of any other building material.

Cleaning Pressed Bricks Stained by Smoke

For the cleaning of bricks in the walls of a church that had been blackened by coal smoke and which settled on the coping and washed down over the light colored hydraulic pressed brick, and where dilute muriatic acid, pearline and other substances had been tried without satisfactory results, the *Painters Magazine* suggests the following procedure: Muriatic acid will not remove smoke stains, nor will soda or soda ash do it. Smoke stains must be removed by scrubbing and rubbing with the proper solutions.



Looking north on Madison Avenue, Toronto. A pleasant residential street built up of solid brick residences.

practice to apply decorations directly to the interior of a brick or other masonry wall unless the wall is double, i.e., contains a continuous interior air space. In the absence of such interior air space, furring strips must be applied to the inside of the wall for the purpose of giving the necessary insulation.

Identical conditions govern the use of concrete block. The absorption of well made concrete block is considerably less than that of clay brick and is not greater than that of the average building stone used in residence construction.

The hollow space in concrete block was introduced primarily for the purpose of making a dry wall and to eliminate the necessity of furring. Where sections of the block pass entirely through the wall, this object is only partially accomplished; however, in two-piece walls having a continuous horizontal and vertical air space it is satisfactorily attained.

The effectiveness of the insulation depends upon the

Try the following method: Mix one gallon soft soap, two pounds powdered pumice and one pint of liquid ammonia, beating the mixture well. After carefully dusting the brickwork, apply the mixture, that should be in the form of a soft paste, in a fairly thick layer with a fibre brush, allowing it to remain for about twenty minutes; then rub it on the bricks with a good, stiff scrubbing brush, using plenty of elbow-grease. Use a large sponge and plenty of lukewarm water to remove the lather, and then rinse with clear water, or, if convenient, use a hose for rinsing. This, if properly done, will remove the most stubborn case of discoloration by smoke from brick or stone.

The time is here when good work should be good through and through, and not merely present a good-looking outward appearance.

Eliminating Acoustical Defects

Since its erection in 1910 the Amasa Stone Memorial Chapel of Adelbert College has proved to be unsatisfactory acoustically. The general shape of the building, which is one of the Western Reserve University Group in Cleveland, Ohio, is a long and narrow rectangle, 140 feet by 30 feet, and experiments showed the difficulty to be due to general reverberation.

The H. W. Johns-Manville Co. was then asked to undertake the correction of the chapel by its system based on the scientific researches of Prof. Wallace C. Sabine, of Harvard University. Acoustical treatment was applied to the ceiling panels and upper walls, and resulted in the elimination of all the acoustical defects.

The acoustical treatment used by the H. W. Johns-Manville Co., is founded upon the researches of Professor Wallace C. Sabine, of Harvard University, who has devoted the last twenty years to a scientific investigation of the laws governing architectural acoustics.

There are various classes of defects which may arise in the acoustics of auditoriums, but all of these are due in their last analysis to the multiple reflection of sound from the various interior surfaces. The more completely the energy is reflected, the more pronounced the disturbance produced, whether it be interference, echo or reverberation. The sound reflected from certain surfaces is desirable in order to produce reinforcement and sufficient loudness or intensity of the sound, but the sound reflected from other surfaces giving rise to the acoustical defects already mentioned, must be absorbed if correct conditions are to be produced.

The method used in this instance lies in applying highly sound absorbent materials to those surfaces giving the most trouble. The area and thickness and method of application of these materials play an important part in the results to be obtained. The Johns-Manville Company has made a special study of Professor Sabine's work with regard to causes and remedies of acoustical defects in auditoriums, and has developed absorbing felts for their correction. They are applied and concealed in such a way as to harmonize with the general architectural scheme of the building treated.

BUILDING PERMITS FOR NOVEMBER AND ELEVEN MONTHS

		Eastern Cities			
MARITIMES—		Nov. 1914	Nov. 1913	11 mos. 1914	11 mos. 1913
Halifax		\$ 48,655	\$ 45,400	\$ 801,540	\$ 801,650
St. John		20,950	29,050	498,400	2,339,050
Moncton		8,350	6,300	332,605	180,080
ONTARIO—					
Chatham		4,450	21,730	138,430	288,310
Brantford		7,225	16,645	430,510	962,208
Berlin		18,900	37,462	730,340	595,967
Guelph		14,525	8,911	509,344	339,720
Kingston		4,829	16,054	231,497	581,267
London		50,705	83,995	1,807,180	1,742,885
Ottawa		84,495	138,650	4,332,520	3,894,330
Preston		2,080	8,225	92,480	892,365
Peterborough		2,135	29,504	449,140	440,935
Port Arthur		31,400	39,635	1,229,136	1,909,910
Smiths Falls			3,200	114,950	216,555
St. Catharines		28,245	54,935	732,108	678,063
St. Thomas		19,975	23,725	875,966	173,716
Toronto		738,073	1,342,225	19,858,443	25,589,856
Welland		7,488	77,402	335,668	553,657
QUEBEC—					
Montreal		364,710	4,293,746	17,277,311	25,723,867
Westmount		4,170	141,670	693,435	1,788,944
Three Rivers		1,100	14,750	578,455	468,200
Maisonneuve		99,000	336,900	2,507,240	2,306,423
Quebec		76,155	39,510	2,450,899	1,878,590
Total (East)		\$1,636,715	\$6,809,619	\$56,557,597	\$74,037,046
Western Cities					
MANITOBA—					
Winnipeg		260,900	490,950	13,923,400	18,116,700
St. Boniface		1,830	39,230	802,552	1,004,840
Brandon		3,750	19,820	351,135	536,549
SASKATCHEWAN—					
Regina		18,700	51,050	1,763,875	3,989,425
Moose Jaw		9,200	34,600	449,660	4,124,270
Weyburn		4,700	11,750	329,450	170,900
Prince Albert		400	18,300	720,286	1,374,390
ALBERTA—					
Macleod				35,000	150
Red Deer		600	4,100	42,515	142,070
Medicine Hat		10,420	92,002	1,799,402	3,841,657
BRITISH COLUMBIA—					
Vancouver		1,584,475	300,565	4,444,711	10,248,802
Victoria		19,135	194,390	2,133,160	3,665,410
New Westminster		9,275	14,610	253,737	924,770
Oak Bay			24,150	282,716	802,833
Kamloops		2,360	9,660	154,909	281,422
Total (West)		\$1,925,745	\$1,305,177	\$27,486,508	\$49,224,188
Grand total		\$3,562,460	\$8,114,796	\$84,044,105	\$12,261,234

(Courtesy Financial Post.)

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Sand Lime Brick Association Officers

At the annual convention of the Sand Lime Brick Association, held in Dayton, Ohio, December 8 and 9, 1914, two Canadians were elected to office. G. Silvester, of Calgary, Alta., was elected vice-president, and H. W. Terry, of Toronto, secretary. Other officers are: President, W. H. Crume, Dayton, Ohio; treasurer, John

Extensive verandah on a Toronto residence. The material for this was supplied by Batt, Limited, West Toronto.



L. Jackson, Saginaw, Mich.; executive committee, L. W. Penfield, of Willoughby, Ohio; W. D. MacFarlane, of Winnipeg, Canada; John E. Maher, of Rochester, N.Y.; W. J. Carmichael, of Plant City, Fla.; and E. G. Chapman, of Minneapolis, Minn.

The 1915 convention will be held in Wisconsin.

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Personal Mention

Mr. Edgar Lewis Horwood, A.R.C.A., F.R.A.I.C.A., has been appointed to the position of chief architect of the Department of Public Works, at Ottawa, in succession to Mr. David Ewart.

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Convention of National Builders' Supply Association

The annual meeting of the National Builders' Supply Association will be held in Chicago, Ill., February 8 and 9, 1915, with headquarters at the Hotel Sherman. This will just precede the Cement Show, which is to be held in the Coliseum, February 10 to 17.

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Frontier Mason Builders Convene

The sixth annual meeting of the Frontier Mason Builders' Association, an organization of master masons in cities along the frontier, was held in Rochester, N.Y., December 8-9. Representatives, to the number of 17 from the Toronto Builders' Exchange, attended the meeting and were lavishly entertained. The party left Toronto in a private car on the afternoon of December 7th, and on arrival at Rochester put up at Powers' Hotel, the headquarters of the convention.

On the first day the Builders' Exchange of the city of Rochester entertained the visitors at luncheon, and after lunch they were driven in motors to Kodak Park, one of the homes of the Eastman Kodak Co., in Rochester. Immediately on arrival, the delegates were photographed, after which special guides conducted them through the immense plant. At the conclusion of the inspection of the factory, "good cheer" was served in the form of smokes, etc., and each delegate was presented with a finished print of the photograph taken just shortly before.

In the evening a theatre party was the order of the program.

On the second day it was all work. Sessions were held from 9 a.m. till 6 p.m., with a short interval for lunch. At one of the sessions a committee was formed to draw up a uniform form of agreement with the labor unions in the different cities belonging to the association, and a resolution was put through to have a wage scale, showing rates in the various cities, published each year.

Satisfactory reports were read from all the cities, but it was agreed that business at the present was dull.

New officers were elected as follows: President, W. Kroening, Milwaukee; 1st vice-president, William F. Fallon, Buffalo; 2nd vice-president, W. Hayman, London, Ont.; secretary, William F. Dow, Detroit.

The meeting closed with a monster banquet on the evening of the second day. Judge Gillett, of New York State, was toastmaster. Judge Lynn, attorney-general for New York State, and Mr. Rees, principal of the University of Rochester, also spoke.

The members of the Toronto Builders' Exchange who

attended were as follows: Messrs. Chas. Bulley, president of the exchange; John Aldridge; Ed. Gearing; A. E. Flower, secretary of the exchange; Herbert Algie; Walter Page; Robert Page; H. J. Wickett; Robert Bennett; W. J. Hynes; R. J. Orr; Archie Orr; J. C. Claxton; Ed. Forbes; John Maloney; Jim Munro, and W. G. Self.

Several members from the London Builders' Exchange also attended, so Canada was well represented.

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Chief Building Inspector at Hamilton, Ont.

In the December issue of The Canadian Builder and Carpenter it was stated that William J. Whitelock had been appointed assistant chief building inspector for the city of Hamilton. This item was in error, as Mr. Whitelock has been given the position of chief building inspector.

News of Builders' Exchanges

New Officers of Hamilton Exchange

The third annual meeting of the Builders' Exchange was held on December 8 in the rooms in the Chancery Chambers. Following the completion of routine business the election of officers was carried out. C. T. Pearce was elected president for the ensuing year, and the other offices were filled as follows: W. Murray, first vice-president; W. H. Dennis, second vice-president; James Neil, treasurer; directors, G. Metcalfe, G. Hannaford, W. H. Yeates, Jr.; W. Penny, and E. R. Somerville.

Announcement was made that the sanitary and heating engineers of the city would come into the exchange in a body, this increasing the membership by twenty-six.

The election of officers was conducted by George Clapham, the retiring president.

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New Directory at Toronto Exchange

The secretary of the Toronto Builders' Exchange has prepared a new classified directory of the members of the exchange, together with the lines they follow. This will be ready for distribution in January.

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Mr. R. S. Muir Re-Elected

At the annual meeting of the Mantel & Tile Dealers' Association, affiliated with the Montreal Builders' Exchange, Mr. R. S. Muir, of R. S. Muir & Co., was re-elected president of the association. The secretary of the exchange will be the secretary of the association.

Mr. Muir has proved to be a popular and capable president and the members bestowed upon him a well deserved honor when they voted him to the supreme office for a second term.

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If you are doing unusually good work there is not much call to stop and boast about it; let the work talk for itself.

Buy a Hand Mixer With Your Savings

Every batch of concrete you mix with shovels costs you, needlessly, a good part of the price of a reliable hand mixer like the Wettlaufer No. O. Why not buy a hand mixer and let it pay for itself with the savings.

BUY GOODS MADE IN CANADA

WETTLAUFER NO. O, IMPROVED HAND MIXER



Pays its way on any job, Contractors everywhere agree that for speed, economy and uniform mixing there is nothing to equal it. Let us send pamphlet.

Driven with direct gears. Main bearing at the back of drum carries the weight, making a very easy running machine.

Mixer is built high enough to dump into a wheelbarrow. No second handling of the concrete.

In some cases you can wheel the mixer to your foundation and dump in direct.

Our Concrete Machinery and Hoists are the result of improvements during many years spent in the manufacture of the machinery and actual concrete contracting work. Tell us about your work and let us advise you as to the machine for your purpose.

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316 LaGauchetiere St. W.
Montreal

WETTLAUFER BROS.

178 SPADINA AVE., TORONTO

MAYSMITH & LOWE
545 Bastion St.
Victoria, B.C.

A. R. WILLIAMS
MACHINERY CO.
15 Dock St.
St. John, N.B.

G. B. GRANDBY & CO.
20 Princess St.
Winnipeg, Man.

A. E. HODGERT
Regina, Sask.

R. F. MANCEL
41 Cadogan Bldg.
Calgary

The HALLMAN
MACHINERY CO.
3743 Alexander St.
Vancouver, B.C.

Price List of Building Materials—Revised to Date

EDITOR'S NOTE—Great care is exercised in obtaining prices for this department. They are as accurate as it is possible for us to make them. We know, however, that because of varying conditions, different dealers' prices are bound to vary somewhat; and our purpose in publishing this department is to give readers an idea of prices, rather than absolutely definite information.

In some cases a range of prices appears. This is given to cover the variation in quotations given by different dealers, and also to cover slight variations in conditions of measurement or purchases, which space will not permit us to specify in detail.

We will be glad to give readers prices on materials not appearing here (hardwood flooring and hardware trim for instance), and also the names of dealers from whom such materials can be obtained. Such information will be supplied promptly if you write us specifying in detail what is desired.

PRICE AT MONTREAL

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$24.00
2 x 4 in. to 2 x 12 in., 16 ft.	26.00
2 x 4 in. to 2 x 12 in., 18 ft.	28.00 to 30.00
1 in. hemlock No. 1	22.00
No. 1 hemlock decking	23.00 to 25.00
No. 2 hemlock dimensions and 1 in. ...	26.00 to 30.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	\$32.00 to 40.00
2 in. white pine, mill stock	29.00 to 33.00
3/4 x 8 and 10 in. pine shelving	36.00 to 45.00
7/8 x 12 pine shelving	42.00 to 50.00
No. 1 white pine flooring	40.00
No. 1 spruce flooring	30.00
No. 1 pine decking, D2S	40.00
No. 1 pine V. or beaded sheeting	40.00
No. 2 pine V. or beaded sheeting	30.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	\$1.75
5 in. casing, per 100 ft.	2.10
8 in. pine base, per 100 ft.	3.25
10 in. pine base, per 100 ft.	4.20
4 in. pine window stool, per 100 ft. ...	2.75

Shingles, Lath Roofing, Etc.

No. 1 pine lath	5.00
No. 2 pine lath	4.50
No. 1 spruce lath	4.00

Cedar Posts—Fence

5 in. at small end	5c. foot
7 in. at small end	7c. foot

Hardware

Nails, wire, common	\$2.30 base keg
Nails, cut, common	2.50 " "
Sash weights, cast iron	1.50 per 100 lbs.
Tarred felt paper .....	.43 roll
Building paper .....	.35 roll

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	17.00
No. 1 dry pressed buff bricks	21.00
Red stock bricks	11.50
Grey stock bricks	12.00
Wire cut brick for foundation work....	10.00
Fire brick	25.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	15c. foot

Price at Montreal—Continued

Cement, Plaster, Stone, Etc.

Cement (bags extra)	1.90 bbl.
Sand, for cement or brick work .....	.95 ton
Lime .....	.38 per 100 lbs
Hydrated lime	10.00
Mortar color	5.00 bbl.
Plaster of paris	2.35
Crushed stone 2 in.	1.40
Crushed stone, 1 in.	1.60
Crushed stone, 3/4 in.	1.75
Hardwall plaster	\$9.50 to 12.00 neat 6.50 sanded ton
Gravel	1.35 yard
Hair (plaster) .....	.03 per lb.

PRICE AT TORONTO

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$23.00 to 29.00
2 x 4 in. to 2 x 12 in., 16 ft.	23.00 to 29.00
2 x 4 in. to 2 x 12 in., 18 ft.	25.00 to 30.00
1 in. hemlock No. 1	23.00 to 26.00
No. 1 hemlock decking	25.00 to 28.00
No. 2 hemlock dimensions and 1 in. ...	19.00 to 23.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	\$25.00 to 33.00
2 in. white pine, mill stock	29.00 to 34.00
3/4 x 8 and 10 in. pine shelving	33.00 to 40.00
7/8 x 12 pine shelving	45.00 to 48.00
No. 1 white pine flooring	34.00 to 37.00
No. 1 spruce flooring	27.00 to 32.00
No. 1 pine decking, D2S	26.00 to 31.00
Spruce decking	27.00 to 32.00
No. 1 pine V. or beaded sheeting	35.00 to 39.00
No. 2 pine V. or beaded sheeting	30.00 to 33.00

No. 1 Common Yellow Pine

2 x 4 in. to 2 x 14 in., 10 to 16 ft.	\$24.00 to 36.00
2 x 4 in. to 2 x 14 in., 18 to 20 ft.	29.00 to 38.00
2 x 4 in. to 2 x 14 in., 22 to 24 ft.	31.00 to 40.00

Yellow Pine Finish

4/4 x 6, 8, 10 and 12 B. & B. smoke finish	\$41.00
5/4 x " " " " " "	45.00
6/4 x " " " " " "	45.00
8/4 x " " " " " "	45.00
4/4 x " " " " " steam finish	45.00 to 50.00
5/4 x " " " " " "	48.00 to 50.00
6/4 x " " " " " "	48.00 to 50.00
8/4 x " " " " " "	50.00 to 55.00

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

How to Remove Iron Rust From Stucco

"I have a stucco house. The iron work in various places has rusted and the rust has discolored the stucco. I should like to know some way of removing this rust from the stucco itself."—Westerner.

Stannous chloride will remain in solution only in the presence of an excess of hydrochloric acid, consequently the exact amount to be used can be determined only by experiments, which we have not as yet conducted. The stannous chloride should first be dissolved in hydrochloric acid after which as much water should be added as is possible to do and still hold the stannous chloride in solution. The aim is to approach as nearly as possible a 1:3 solution of hydrochloric acid (commercially known as muriatic acid) and water, still retaining in solution the stannous chloride which has been dissolved in the hydrochloric acid before adding water. As the solution has an affinity for carbonate of lime, it is likely to attack the cement, unless quickly applied and thoroughly removed by washing with clear water. —Concrete-Cement Age.

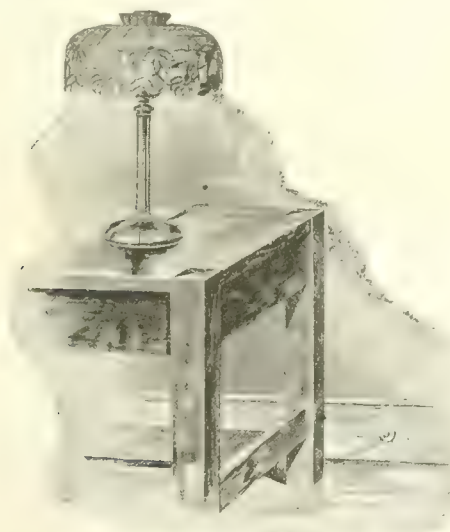
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"Conceal-o" Gas Wall Plate

In the use of portable gas lamps, wall plates have been developed, which are of great convenience. The "Conceal-o" system, illustrated herewith, consists of (1) Conceal-o proper; (2) Gas proof tubing; and (3) Adaptors for exposed cocks.

The Conceal-o, proper, is a special gas valve designed for installation in baseboard, wall or floor, for supplying gas to any portable gas appliance—lamp, heating stove, percolator, chafing dish, flat-iron, nursery burner, etc. It is made up of four parts—(a) malleable iron housing; (b) brass valve; (c) cover or faceplate; and (d) wing nut union for the tubing.

In old houses the Conceal-o is installed complete as it comes from the factory. It is as easy to install as a bracket. In houses under construction, the housing only is installed at the time the house is piped. When



Conceal-o gas socket indicated by arrow, with portable gas lamp attached.

should it ever be desired to remove the valve, it can be taken out of the housing exactly as a plug is removed the house is completed, the valve and cover are put in.

This apparatus is made as nearly trouble-proof as it is possible to make a high-grade gas fixture, but

from a fitting, without in any way disturbing the piping.

Other important features are: A capacity of 50 feet per hour; a positive locking device, which makes it impossible to turn on the gas when the tubing is disconnected; steel operating lever, with knob affording ample finger hold; approved gas cock construction, easy to take out core if necessary; and positively leak-proof connection from Conceal-o to tubing.

The Conceal-o union fits every Conceal-o valve. It



Conceal-o gas socket sold by Consumers' Gas Co., Toronto.

also can be connected to ordinary exposed gas cocks (used where appearance is not important) by merely placing on such cocks a small adaptor fitting, made in several suitable styles.

The development of this system has also brought perfection in gas tubing. The tubing is gas proof and will carry gas in the tube under pressure practically indefinitely, just like iron pipe, without leaking or smelling. With it, for example, you can put chain-pull by-pass burners on table lamps, and turn the gas on and off at the burner.

This information was supplied by the Consumers' Gas Co., Toronto, who have placed these valves on the Canadian market.

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Questions and Answers on "Safe Lock Shingles" and "Corrugated Iron"

The Metal Shingle & Siding Co., Preston, Ont., have prepared for distribution a booklet giving a great deal of information on metal shingles and corrugated iron. The data is arranged as answers to questions and the booklet is rather unique in this respect. The result is a rather effective way of presenting the information, however, and builders will find it easy to read and understand.

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Cast Stone and Block Machine Co.

The Canadian Zagelmeyer Co., Limited, have changed their name to the Cast Stone, Block & Machine Co. The head offices are at 302 Howard avenue, Windsor, Ont.

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Concrete roofs may be waterproofed by coating the bottom thickness of, say, 3 ins. of concrete with hot tar and then pouring the, say, 1-in. finish coat of 1:3 mortar over this. The finish coat should be troweled off smooth.

Price List of Building Materials—Continued.

Price at Toronto—Continued

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	\$1.80 to 2.00
5 in. casing, per 100 ft.	2.00 to 2.50
8 in. pine base, per 100 ft.	2.75 to 3.25
10 in. pine base, per 100 ft.	4.00 to 4.50
4 in. pine window stool, per 100 ft. ...	3.00

Hardwood Trim, Flooring, Etc.

Quotations will be given on request.
See editor's note above.

Shingles, Lath Roofing Etc.

XXX B. C. cedar shingles	\$3.35 per M
N. B. extras	4.00
No. 1 pine lath	5.00 to 5.50 per M
No. 2 pine lath	4.75 to 5.00
No. 1 spruce lath	4.25
Roofing	1 ply—\$1.60 per sq.
	2 ply— 2.00 "
	3 ply— 2.40 "

Cedar Posts—Fence

5 in. at small end .....	.25 each
7 in. at small end .....	.50 each

Hardware

Nails, wire, common	\$2.35 cwt.
Nails, cut, common	2.95
Sash weights, cast iron	2.00
Tarred paper .....	.65 roll
Building paper, plain .....	.50

Glass

United inches	Star	D.D.
Up 25	\$4.25	6.25
26-40	4.65	6.75
41-50	5.10	7.50
51-60	5.35	8.50
61-70	5.75	9.75
71-80	6.25	11.00
81-85	7.00	12.50
86-90	7.75	15.00
91-95		17.50
96-100		20.50
101-105		24.00
106-110		27.50

Less 5 per cent. on D. D. f.o.b. Toronto.

Wired glass	18c. to 20c. per sq. ft.
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Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	\$14.00 to 18.00 pr M
No. 1 dry pressed buff bricks	14.50 to 18.00
Red stock bricks	10.00 to 12.50
Sand lime brick	8.50
Grey stock bricks	10.50 to 12.50
Sewer brick	9.00 to 10.00
Wire cut brick for foundation work ...	8.00 to 9.00
Porous terra cotta bricks	12.00 to 15.00
No. 1 enamelled bricks, all colors, from	80.00 to 150.00
Fire brick	26.00 to 30.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	16c. foot
Verandah post caps, 16 in.	1.45 each
Verandah post caps, 20 in.	1.75 "
Chimney caps, 1 flue in 1 piece	2.00 "
Chimney caps, 2 flues in 2 pieces	3.50 "
Chimney caps, 3 flues in 3 pieces	5.00 "

Cement, Plaster, Stone, Etc.

Cement (bags extra)	\$1.85 bbl.
	(1.55 in car lots)
Sand, for cement or brick work	1.20 a yard

Price at Toronto—Continued

Lime .....	.38 cwt.
Hydrated lime (Canadian)	10.00 ton
Hydrated lime (American)	11.00 "
Mortar color	black, 3; red, 1½
Plaster of paris	\$1.50 to 2.50
Crushed stone, 2 in.	1.20
Crushed stone, 1 in.	1.25
Crushed stone, ¾ in.	1.25
Hardwall plaster	8.60
	4.50 sanded
Gravel	1.50
Hair (plaster) .....	.07 lb.

PRICE AT WINNIPEG

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$29.00
2 x 4 in. to 2 x 12 in., 16 ft.	29.00
2 x 4 in. to 2 x 12 in., 18 ft.	29.00

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	\$4.00 & 3.50 per M
No. 1 pine lath	5.75 per M
Metal lath .....	.16 to .20
Roofing felt (2-ply)	2.50 per roll

Hardware

Nails, wire, common	\$3.70 per keg
Nails, cut, common	3.70
Sash weights, cast iron	2.75 cwt.
Tarred felt paper	1.00 per roll
Building paper .....	.75
Insulating paper	1.25

Glass

United inches	Single	Double
Up 25 (per 100-ft. box)	\$6.50	8.60
26-40	\$7.00	10.00
41-50	7.40	11.70
51-60	8.00	12.00
61-70	8.75	12.75
71-80	9.50	13.85
81-85	10.50	17.50
86-90		18.85
91-95		19.20
96-100		22.75
101-105		32.00
106-110		36.00

Less 20 p.c. F.O.B. Toronto.

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	\$25.00 to 50.00
No. 1 dry pressed buff bricks	30.00 to 40.00
Red stock bricks	25.00
Sand lime brick	12.00
Porous terra cotta bricks	18.00 per M
No. 1 enamelled bricks, all colors, from	100.00
Fire brick	52.50
Oriental brick	35.00
Sewer pipe, 4 inch .....	.11 per ft.
Sewer pipe, 6 inch .....	.18½ per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	\$2.60 per bbl.
Sand, for cement or brick work	1.85 a yard
Lime .....	.34 per bu.
Hydrated lime	12.00 per ton
Mortar color .....	.05 per lb.
Plaster of paris .....	.75 per bag
Crushed stone, 2 in.	2.65 per yard
Crushed stone, 1 in.	2.90

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

CLASSIFIED DIRECTORY—A BUYER'S GUIDE FOR BUILDERS IN CANADA

Acetylene Lighting

Davis Acetylene Co., Niagara Falls, Ont.

Air Compressors

Stuart Machinery Co., Ltd., Winnipeg.

Alabastine

Alabastine Co., Paris, Ont.

Asphalt

Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Walkerville Roofing Mfg. Co., Walkerville, Ont.

Asphalt (Mastic)

Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Walkerville Roofing Mfg. Co., Walkerville, Ont.

Asphalt (Paint)

Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Walkerville Roofing Mfg. Co., Walkerville, Ont.

Automatic Gas-Steam Boilers

Consumers' Gas Co., Toronto.

Barrows and Concrete Carts

London Concrete Machinery Co., London, Ont.

Beaded Sheets

Metal Shingle & Siding Co., Preston.

Belting

Stuart Machinery Co., Ltd., Winnipeg.

Bevels

Henry Disston & Sons, Philadelphia.

Blinds

Georgian Bay Shook Mills, Midland.

The R. Laidlaw Co., Limited, Toronto.

Wilson Bros. Ltd., Collingwood.

Blinds, Venetian

Georgian Bay Shook Mills, Midland.

The R. Laidlaw Co., Limited, Toronto.

Wilson Bros. Ltd., Collingwood.

Boilers

Stuart Machinery Co., Ltd., Winnipeg.

Brick

Sun Brick Co., Ltd., Toronto.

Milton Pressed Brick Co., Toronto.

Bronze Cast

W. H. Thornhill Co., Winnipeg.

Dennis Wire & Iron Works Co., London.

Builders' Supplies

Bournival & Co., Montreal.

Georgian Bay Shook Mills, Midland.

Wilson Bros. Ltd., Collingwood.

Cast Stone Block Machinery

Cast Stone Block & Machine Co., Ltd.

Windsor, Canada.

Cars (Contractors)

Stuart Machinery Co., Ltd., Winnipeg.

Casement & Sash (Steel and Bronze)

W. H. Thornhill Co., Winnipeg.

Carts (Concrete)

London Concrete Machinery Co., London, Ont.

Ceilings (Metal)

Metal Shingle & Siding Co., Preston.

Cement (Portland)

Braid & McCurdy, Winnipeg, Man.

Ontario Lime Association, Toronto.

Cement Castings

W. J. Hynes, Limited, Toronto.

Cement Tools

Wettlaufer Bros., Toronto, Ont.

Cement Saws

London Concrete Machinery Co., London, Ont.

Chain Hoists

Stuart Machinery Co., Ltd., Winnipeg.

Chain Sprockets

Stuart Machinery Co., Ltd., Winnipeg.

Colors for Concrete

Ideal Concrete Machinery Co., London.

Columns

Batts, Limited, Toronto.

Benson & Bray, Midland.

Georgian Bay Shook Mills, Midland.

The R. Laidlaw Co., Limited, Toronto.

Wilson Bros. Ltd., Collingwood.

York Lumber Co., Toronto.

Combination Woodworkers

W. A. Elliott, Toronto.

Hutchinson Woodworker Co., Toronto.

Parks Ball Bearing Machine Co., Cincinnati.

Composition Capitals for Columns

W. J. Hynes, Limited, Toronto.

Concrete Block Machines

Cast Stone Block & Machine Co., Ltd.

Windsor, Canada.

Exeter Mfg. Co., Limited, Exeter, Ont.

Ideal Concrete Machinery Co., London.

London Concrete Machinery Co., London, Ont.

Wettlaufer Bros., Toronto, Ont.

Concrete Brick Machine

Exeter Mfg. Co., Limited, Exeter, Ont.

Ideal Concrete Machinery Co., London.

London Concrete Machinery Co., London, Ont.

Wettlaufer Bros., Toronto, Ont.

Concrete Mixers

Bournival & Co., Montreal.

Eureka Machine Co., Lansing, Mich.

Ideal Concrete Machinery Co., London.

London Concrete Machinery Co., London, Ont.

Stuart Machinery Co., Ltd., Winnipeg.

Wettlaufer Bros., Toronto, Ont.

Concrete Forms

Exeter Mfg. Co., Limited, Exeter, Ont.

Concrete Sill, Lintel Machines

Exeter Mfg. Co., Limited, Exeter, Ont.

Concrete Tile Machines

Exeter Mfg. Co., Limited, Exeter, Ont.

Ideal Concrete Machinery Co., London.

Wettlaufer Bros., Toronto, Ont.

Concrete Reinforcements

Metal Shingle & Siding Co., Preston.

Contractors' Machinery

Stuart Machinery Co., Ltd., Winnipeg.

Wettlaufer Bros., Toronto, Ont.

Contractors' Plants

Stuart Machinery Co., Ltd., Winnipeg.

Conveying Machinery

Stuart Machinery Co., Ltd., Winnipeg.

Cornices (Galvanized Iron)

Metal Shingle & Siding Co., Preston.

Corrugated Sheets (Steel)

Metal Shingle & Siding Co., Preston.

Cranes and Hoists

Stuart Machinery Co., Ltd., Winnipeg.

Sasgen Derrick Co., Toronto.

Crestings

Metal Shingle & Siding Co., Preston.

Cross-cut Saws

Henry Disston & Sons, Philadelphia

Crushers

Wettlaufer Bros., Toronto, Ont.

Curb Stone Machines

Ideal Concrete Machinery Co., London.

Daylight Rods

Consolidated Plate Glass Co., Toronto.

Derricks

Ideal Concrete Machinery Co., London.

London Concrete Machinery Co., London, Ont.

Sasgen Derrick Co., Toronto.

Stuart Machinery Co., Ltd., Winnipeg.

Doors

Batts, Limited, Toronto.

Benson & Bray, Midland.

Georgian Bay Shook Mills, Midland.

York Lumber Co., Toronto.

Doors (Veneered)

Batts, Limited, Toronto.

Benson & Bray, Midland.

Georgian Bay Shook Mills, Midland.

Wilson Bros. Ltd., Collingwood.

York Lumber Co., Toronto.

Door Trimmings

Metal Shingle & Siding Co., Preston.

W. H. Thornhill Co., Winnipeg.

Drag Scrapers

London Concrete Machinery Co., London, Ont.

Draughting

The Patent Selling & Mfg. Agency, Toronto.

Drawing Materials

Eugene Dietzgen Co., Ltd., Toronto.

Driers

London Concrete Machinery Co., London, Ont.

Dumbwaiters

Chelsea Elevator Co., New York, N.Y.

Eavestrough and Conductor-Pipe

Metal Shingle & Siding Co., Preston.

Electrical Fixtures and Specialties

Duncan Electrical Co., Montreal.

W. H. Thornhill Co., Winnipeg.

Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Electrical Machinery

Stuart Machinery Co., Ltd., Winnipeg.

Elevator Fronts

Dennis Wire & Iron Works Co., London.

Elevators (Passenger and Freight)

Chelsea Elevator Co., New York, N.Y.

Stuart Machinery Co., Ltd., Winnipeg.

Emery and Emery Wheels

Stuart Machinery Co., Ltd., Winnipeg.

Engines (Steam)

Stuart Machinery Co., Ltd., Winnipeg.

Engines (Gas and Gasoline)

Consumers Gas Co., Toronto.

Ideal Concrete Machinery Co., London.

London Concrete Machinery Co., London, Ont.

Stuart Machinery Co., Ltd., Winnipeg.

Wettlaufer Bros., Toronto, Ont.

Excavators

Stuart Machinery Co., Ltd., Winnipeg.

Felts (Asphalt)

Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Felts (Hair)

Canadian H. W. Johns-Manville Co., Ltd., Toronto.

CLASSIFIED DIRECTORY—Continued

- Felts (Plain Building)**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Felts (Tar)**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Fences**
Dennis Wire & Iron Works Co., London.
Dominion Ornamental Iron Co., Ltd., Toronto.
George B. Meadows, Toronto.
- Fence Post Mould**
London Concrete Machinery Co., London, Ont.
- Files**
Henry Disston & Sons, Philadelphia.
- Finials**
Metal Shingle & Siding Co., Preston.
- Fire Brick and Fire Clay**
Stuart Machinery Co., Ltd., Winnipeg.
- Fir Doors**
Georgian Bay Shook Mills, Midland.
- Fire Escapes**
Dominion Ornamental Iron Co., Ltd., Toronto.
George B. Meadows, Toronto.
Dennis Wire & Iron Works Co., London.
Eberhard-Wood Mfg. Co., Toronto.
- Fireproof Windows**
Metal Shingle & Siding Co., Preston.
- Flooring**
Batts, Limited, Toronto.
Benson & Bray, Midland.
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
Georgian Bay Shook Mills, Midland.
The R. Laidlaw Co., Limited, Toronto.
Wilson Bros. Ltd., Collingwood.
Siemen Bros., Ltd., Toronto.
York Lumber Co., Toronto.
- Floor Scrapers**
Exeter Mfg. Co., Ltd., Exeter, Ont.
Fox Supply Co., Brooklyn, Wis.
- Frames (Knockdown)**
York Lumber Co., Toronto.
- Frames and Sash**
York Lumber Co., Toronto.
Wilson Bros. Ltd., Collingwood.
- Forms (Concrete)**
Exeter Mfg. Co., Ltd., Exeter, Ont.
Ideal Concrete Machinery Co., London.
London Concrete Machinery Co., London, Ont.
Wettlaufer Bros., Toronto, Ont.
- Framing Tools**
G. A. Topp & Co., Indianapolis, Ind.
- Gas Lighting Appliances**
Consumers' Gas Co., Toronto.
- Gas Ranges**
Consumers' Gas Co., Toronto.
- Gates**
Dennis Wire & Iron Works Co., London.
George B. Meadows, Toronto.
- Glass**
Consolidated Plate Glass Co., Toronto.
The Toronto Plate Glass & Importing Co., Toronto.
- Gravel Screens (Power)**
Ideal Concrete Machinery Co., London.
- Grills (Steel and Bronze)**
Dennis Wire & Iron Works Co., London.
- Hair (Plasterers')**
Ontario Lime Association, Toronto.
- Hand Scrapers**
Fox Supply Co., Brooklyn, Wis.
- Hard Wall Plaster**
Crown Gypsum Co., Lythmore, Ont.
- Hardwood Flooring**
Batts, Limited, Toronto.
Georgian Bay Shook Mills, Midland.
The R. Laidlaw Co., Limited, Toronto.
Siemen Bros., Ltd., Toronto.
Wilson Bros. Ltd., Collingwood.
- Heating Apparatus**
Stuart Machinery Co., Ltd., Winnipeg.
- Heaters (Glue Pot)**
Consumers Gas Co., Toronto.
- Heaters (Gas)**
Consumers Gas Co., Toronto.
- Herringbone Lath**
Metal Shingle & Siding Co., Preston.
- Hoists**
Ideal Concrete Machinery Co., London.
London Concrete Machinery Co., London, Ont.
Wettlaufer Bros., Toronto, Ont.
- Hoisting Engines**
London Concrete Machinery Co., London, Ont.
Stuart Machinery Co., Ltd., Winnipeg.
- Imitation Marble**
W. J. Hynes, Ltd., Toronto.
- Interior Trim**
Batts, Limited, Toronto.
Benson & Bray, Midland.
Georgian Bay Shook Mills, Midland.
The W. A. Moore Co., Ltd., Meaford.
Wilson Bros. Ltd., Collingwood.
York Lumber Co., Toronto.
- Interlocking Hollow Building Tile**
Sun Brick Co., Ltd., Toronto.
- Iron Fences**
Dennis Wire & Iron Works Co., London.
Eberhard-Wood Mfg. Co., Toronto.
George B. Meadows, Toronto.
- Joiners' Work**
Georgian Bay Shook Mills, Midland.
Wilson Bros. Ltd., Collingwood.
- Keene's Cement**
Braid & McCurdy, Winnipeg, Man.
- Lath**
Batts, Limited, Toronto.
Georgian Bay Shook Mills, Midland.
The R. Laidlaw Co., Limited, Toronto.
Wilson Bros. Ltd., Collingwood.
York Lumber Co., Toronto.
- Lime**
Ontario Lime Association, Toronto.
- Lockers (Steel)**
Dennis Wire & Iron Works Co., London.
Geo. B. Meadows, Toronto.
- Lumber**
Batts, Limited, Toronto.
Georgian Bay Shook Mills, Midland.
The R. Laidlaw Co., Limited, Toronto.
Wilson Bros., Ltd., Collingwood.
York Lumber Co., Toronto.
- Machinery (Brick and Tile)**
Stuart Machinery Co., Ltd., Winnipeg.
- Machinery (Woodworking)**
Stuart Machinery Co., Ltd., Winnipeg.
- Marble (Imitation)**
W. J. Hynes, Limited, Toronto.
- Mineral Wool**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Model Makers**
The Patent Selling & Mfg. Agency, Toronto.
- Mortar Colors**
Ontario Lime Association, Toronto.
- Mitre Box**
Goodell Mfg. Co., Greenfield, Mass.
- Moulds (Concrete)**
Ideal Concrete Machinery Co., London.
- Mortar Gauges**
Ideal Concrete Machinery Co., London.
- Mortar Mixers**
London Concrete Machinery Co., London, Ont.
- Mouldings**
Batts, Ltd., Toronto.
Georgian Bay Shook Mills, Midland.
Wilson Bros., Ltd., Collingwood.
- Nails**
P. L. Robertson Mfg. Co., Milton.
- Ornamental Iron Work**
Dennis Wire & Iron Works Co., London.
Eberhard-Wood Mfg. Co., Toronto.
George B. Meadows, Toronto.
- Ornamental Bronze Work**
Dennis Wire & Iron Works Co., London.
- Ornamental Moulds**
London Concrete Machinery Co., London, Ont.
- Paints (Asphalt)**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
Walkerville Roofing Mfg. Co., Walkerville, Ont.
- Paper (Asbestos)**
Asbestos Mfg. Co., Montreal.
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Paper (Felt Building)**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Paper (Insulating)**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
Walkerville Roofing Mfg. Co., Walkerville, Ont.
- Paper (Waterproofing)**
Braid & McCurdy, Winnipeg.
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Patent Attorneys**
The Patent Selling & Mfg. Agency, Toronto.
J. A. MacMurty & Co., Toronto.
Stanley Lightfoot, Toronto.
- Pile Driving Machinery**
Stuart Machinery Co., Ltd., Winnipeg.
- Plaster**
Crown Gypsum Co., Lythmore.
Ontario Lime Association, Toronto.
- Plaster (Hardwall)**
Crown Gypsum Co., Lythmore.
Ontario Lime Association, Toronto.
- Plaster (Inside, Asbestos)**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Plaster Ornaments**
W. J. Hynes, Limited, Toronto.
- Plaster Paris**
Crown Gypsum Co., Lythmore.
Ontario Lime Association, Toronto.
- Plaster (Stucco Asbestos)**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Plumbs**
Frank Sand Mfg. Co., Windsor, Ont.
- Plumbs and Levels**
Henry Disston & Sons, Philadelphia.
- Plumbing Supplies**
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
- Portable Saw Rigs**
Oshkosh Mfg. Co., Oshkosh, Wis.
- Pulpstone**
Alabastine Co., Paris, Ont.
- Pulleys**
Stuart Machinery Co., Ltd., Winnipeg.
- Pumps**
London Concrete Machinery Co., London, Ont.
Stuart Machinery Co., Ltd., Winnipeg.
Wettlaufer Bros., Toronto, Ont.
- Quarrying Machinery**
Stuart Machinery Co., Ltd., Winnipeg.
- Receptacles (Electrical)**
Duncan Electrical Co., Montreal.
- Red Slate Roofing**
Walkerville Roofing Mfg. Co., Walkerville, Ont.
- Ridge (Galvanized)**
Metal Shingle & Siding Co., Preston.

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Everything in Lumber

Timbers, Sash Doors, Columns, Etc.

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KORELOCK and KLIMAX Doors

In Oak, Birch and Fir

LARGE STOCK RIGHT PRICES PROMPT SHIPMENT

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"CLINCHER"
FELT WEATHER STRIP**

NOTE—NAIL PASSES THROUGH
BOTH MOULDING AND FELT.

**The Most
Effective
Weather
Strip Made**

It will thoroughly exclude Wind, Cold, Snow, Rain and Dust and the fact that the felt is glued to the bottom of the moulding makes it the only dust-proof weather strip on the market.

Write for Free Sample to N. L. Alderson, 186 Evelyn Ave. West Toronto, Rep'tive for Ontario. Beware of Imitations: For Sale at all Leading Hardware Stores.

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NO FALLING WINDOWS
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SASH WEIGHTS
RATTLING
BINDING
CORDS with
**AUTOMATIC
SASH HOLDERS**

**SPECIFY
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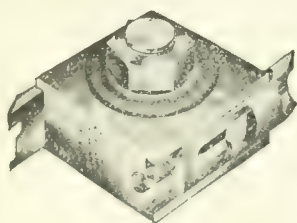
Automatic Sash Holders
and save labor, lumber and money. Send for trial set (12 prepaid) stating approximate weight of sash, or our circular.

P. L. Schmidt Hardware, Ltd.
Montreal, Quebec

WINDOW LETTERS

BRASS PLATES ENAMELLED IRON
SIGNS • HOUSE NUMBERS
WOOD & GLASS

J.E. RICHARDSON & CO. 147 CHURCH ST.
TORONTO.



Patented
December 30, 1913

Cutter Head

An all steel head that can be used on saw table and adjusted by headless set screws. Runs like a solid cutter. Knives held by dovetail sides and hexagon head bolt.

Huther Brothers Saw Manuf'g Co.

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7% INVESTMENT

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Business at back of this investment, established 28 years. All or any part of investment may be withdrawn at any time after one year on 60 days' notice. Safe as any mortgage. Send for special folder.

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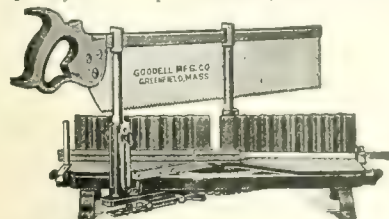
Confederation Life Building, Toronto.

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Made of STEEL

Cannot Break

For years this Box has been recognized as being first in quality and improvements, and the new STEEL BOTTOM



PLATES with ANGULAR SERRATURES to prevent the work from slipping add still more to its convenience and attractiveness. Write for new Circular D. describing this and many other features.

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EXEMPLAR OF QUALITY

Dumb - Waiters

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Chelsea Elevator Co., New York

AGENTS

Hardware Co. of Toronto, Limited

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No. 4 Band Brake Dumb-Waiter. 50 to 150 lbs. capacity.

CLASSIFIED DIRECTORY—Continued

Ridgings
Metal Shingle & Siding Co., Preston.

Rivets
P. L. Robertson Mfg. Co., Milton.

Rock Crushers
Wettlaufer Bros., Toronto, Ont.

Roofing (Asbestos Corrugated)
Asbestos Mfg. Co., Montreal.

Roofing (Asbestos Shingles)
Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Roofing (Prepared Asbestos)
Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Roofing (Rubber)
Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Roofing (Sand Surface Felt)
Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Roofing (Smooth Surface Felt)
Canadian H. W. Johns-Manville Co., Ltd., Toronto.

Roofing Tile Machines
Ideal Concrete Machinery Co., London.

Sand Sifting Machines
London Concrete Machinery Co., London, Ont.

Sash
Batts, Limited, Toronto.
Benson & Bray, Midland.
Georgian Bay Shook Mills, Midland.
The R. Laidlaw Co., Limited, Toronto.
Wilson Bros., Ltd., Collingwood.

Saw Mill Machinery
Stuart Machinery Co., Ltd., Winnipeg.

Saws (Band)
Henry Disston & Sons, Philadelphia.
Simonds Canada Saw Co., Montreal.

Saws (Hand)
Henry Disston & Sons, Philadelphia.
Simonds Canada Saw Co., Montreal.

Saws (Circular)
Henry Disston & Sons, Philadelphia.
Simonds Canada Saw Co., Montreal.

Saws (Hack)
Henry Disston & Sons, Philadelphia.
Simonds Canada Saw Co., Montreal.

Scraper Knives
Fox Supply Co., Brooklyn, Wis.

Scrapers
Fox Supply Co., Brooklyn, Wis.

Scrapers (Drag)
London Concrete Machinery Co., London, Ont.

Scrapers (Wheel)
London Concrete Machinery Co., London, Ont.

Scraper Sharpening Device
Fox Supply Co., Brooklyn, Wis.

Screens (Sand)
London Concrete Machinery Co., London, Ont.

Screens (Window and Door)
Batts, Limited, Toronto.
Georgian Bay Shook Mills, Midland.
The R. Laidlaw Co., Limited, Toronto.
Wilson Bros., Ltd., Collingwood.

Sewer Pipe
Ontario Lime Association, Toronto.

Sewer Pipe Moulds
London Concrete Machinery Co., London, Ont.

Shingles
Batts, Limited, Toronto.
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
Georgian Bay Shook Mills, Midland.
Wilson Bros., Ltd., Collingwood.
York Lumber Co., Toronto.

Sheeting
Batts, Limited, Toronto.
Benson & Bray, Midland.
Georgian Bay Shook Mills, Midland.
Wilson Bros. Ltd., Collingwood.

Sidewalk Dividing Plates
London Concrete Machinery Co., London, Ont.

Sidewalk Forms (Steel)
London Concrete Machinery Co., London, Ont.

Sidewalk Prisms
Consolidated Plate Glass Co., Toronto.

Siding
Batts, Limited, Toronto.
Benson & Bray, Midland.
Georgian Bay Shook Mills, Midland.
Wilson Bros., Ltd., Collingwood.

Sill and Cap Moulds
London Concrete Machinery Co., London, Ont.

Silo Block Machines
London Concrete Machinery Co., London, Ont.

Sockets (Brass and Porcelain)
Duncan Electrical Co., Montreal.

Soldering Iron Heaters
Consumers' Gas Co., Toronto.

Shooks
Georgian Bay Shook Mills, Midland.

Skylights
Metal Shingle & Siding Co., Preston.

Staff Plaster
W. J. Hynes, Limited, Toronto.

Stairs
Batts, Limited, Toronto.
Georgian Bay Shook Mills, Midland.
The R. Laidlaw Co., Limited, Toronto.
Wilson Bros., Ltd., Collingwood.

Stairs (Iron)
Dennis Wire & Iron Works Co., London.

George B. Meadows, Toronto.

Stanchions
Metal Shingle & Siding Co., Preston.

Steel Buildings and Garages
Metal Shingle & Siding Co., Preston.

Steam Shovels
Stuart Machinery Co., Ltd., Winnipeg.

Stone (Crushed)
Ontario Lime Association, Toronto.

Stone Crushers
Stuart Machinery Co., Ltd., Winnipeg.

Store Fixtures
Batts, Limited, Toronto.
Canadian H. W. Johns-Manville Co., Ltd., Toronto.
The R. Laidlaw Co., Ltd., Toronto.
Metal Shingle & Siding Co., Preston.
Wilson Bros., Ltd., Collingwood.

Store Front Bars
Consolidated Plate Glass Co., Toronto.

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Batts, Limited, Toronto.
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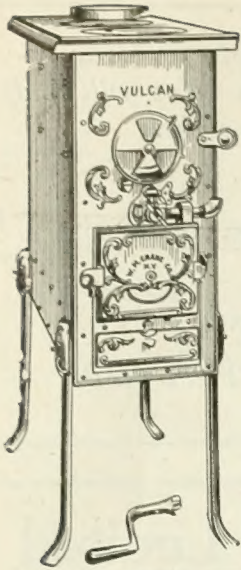
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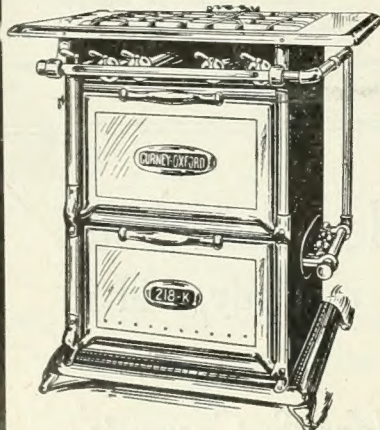
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Index to Advertisers

B

Batts, Limited	12-13
Belleville Hardware Co.	15
Benson & Bray, Ltd.	4-5

C

Canadian H. W. Johns-Manville Co., Ltd.	8
Cast Stone, Block & Machine Co.,	18
Chelsea Elevator Co.	43
Clare Bros., Ltd.	i.b.c.
Consolidated Plate Glass Co.	10
Consumers' Gas Co.	46
Crown Gypsum Company	o.b.c.

D

Dennis, W. J. & Co.	43
Dennis Wire & Iron Works	15
Disston, Henry, & Sons	i.b.c.

E

Elliot Woodworker, Ltd.	6-7
------------------------------	-----

F

Fox Supply Co.	i.b.c.
---------------------	--------

G

Georgian Bay Shook Mills, Ltd.	3, i.f.c.
Gilmore, A. A.	45
Goodell Mfg. Co.	43

H

Hutchinson Woodworker Co.	16
Huther Bros. Saw Manufacturing Co.	43
Hynes, W. J., Co.	45

L

Laidlaw, R., Lumber Co., Limited	43
Lightfoot, Stanley	45
London Concrete Machinery Co.	16

M

Macmurtry, J. A., & Co.	45
Meadows, Geo. B., Co.	16

N

National Securities Corporation, Ltd.	43
--	----

O

Oshkosh Mfg. Co.	10
-----------------------	----

P

Page Wire Fence Co., Ltd.	10
Peace, Wm., Co., Ltd.	45
Powell Lumber & Door Co., Ltd.	43

R

Richardson, J. E., & Co.	43
Richards-Wilcox Canadian Co.	8

S

Schmidt, P. L., Hardware, Ltd.	43
Simonds Saw Mfg. Co.	8
Standard Supply Co.	45

T

Toronto Plate Glass Co.	10
------------------------------	----

W

Wettlaufer Bros.	87
Wilson Bros.	15

Y

York Lumber Co., Ltd.	9
----------------------------	---

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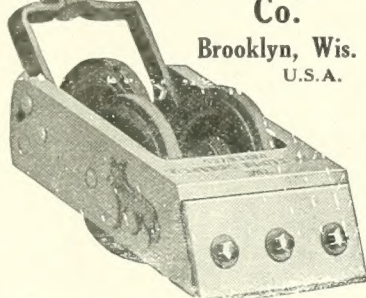
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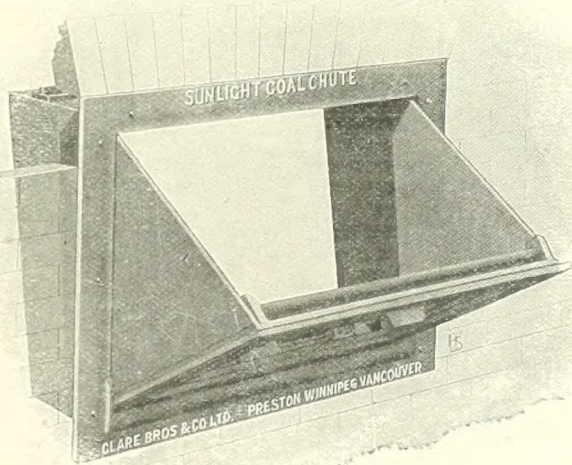
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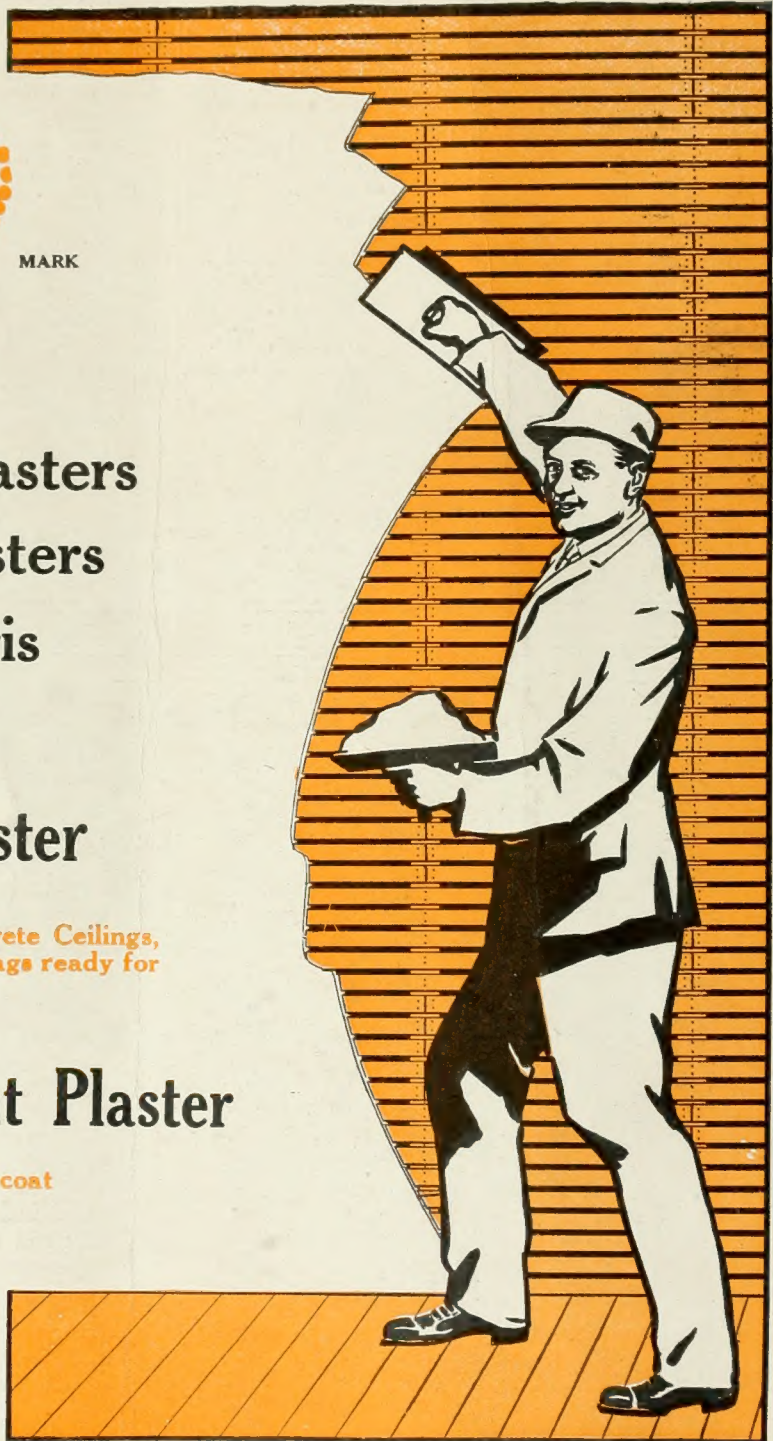
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